

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
14 February 2002 (14.02.2002)

PCT

(10) International Publication Number  
**WO 02/12440 A2**

(51) International Patent Classification<sup>7</sup>: **C12N**

(21) International Application Number: PCT/US01/24708

(22) International Filing Date: 7 August 2001 (07.08.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/223,323 7 August 2000 (07.08.2000) US  
09/873,319 5 June 2001 (05.06.2001) US

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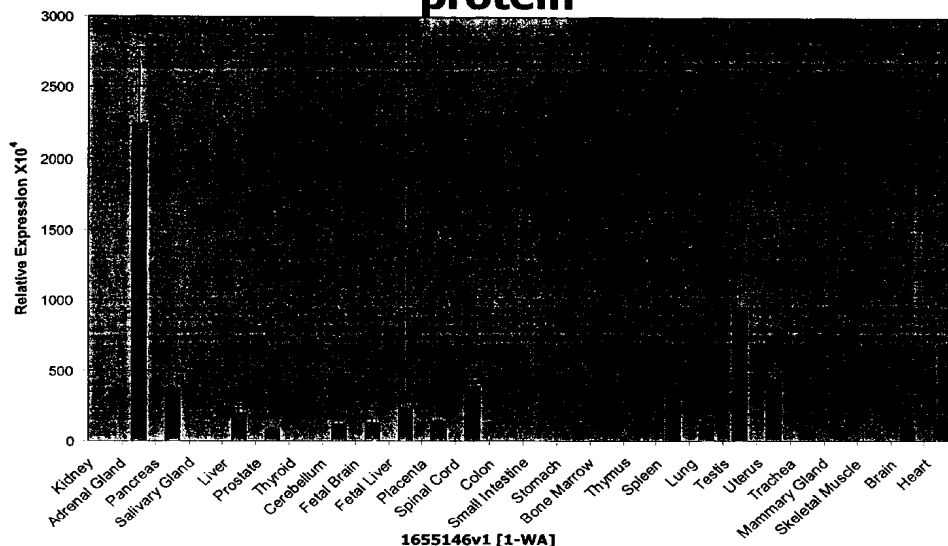
(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian

[Continued on next page]

(54) Title: IDENTIFYING DRUGS FOR AND DIAGNOSIS OF BENIGN PROSTATIC HYPERPLASIA USING GENE EXPRESSION PROFILES

## N91971, cellular retinol binding protein



(57) Abstract: The present invention is based on the elucidation of the global changes in gene expression in prostate tissue isolated from patients exhibiting different clinical states of prostate hyperplasia as compared to normal prostate tissue as well as the identification of individual genes that are differentially expressed in diseased prostate tissue.



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patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**Published:**

— *without international search report and to be republished upon receipt of that report*

## IDENTIFYING DRUGS FOR AND DIAGNOSIS OF BENIGN PROSTATIC HYPERPLASIA USING GENE EXPRESSION PROFILES

### RELATED APPLICATIONS

This application claims priority of U.S. Provisional Application No. 60/223,323, filed August 7, 2000, and U.S. Application No. 09/873,319, filed June 5, 2001, which are herein incorporated by reference in their entirety.

### BACKGROUND OF THE INVENTION

5 Benign Prostatic Hyperplasia (BPH) is the most common benign tumor in men aged >60 years. It is estimated that one in four men living to the age of 80 will require treatment for this disease. BPH is usually noted clinically after the age of 50, the incidence increasing with age, but as many as two thirds of men between the ages of 40 and 49 demonstrate histological evidence of the disease.

10 The anatomic location of the prostate at the bladder neck enveloping the urethra plays an important role in the pathology of BPH, including bladder outlet obstruction. Two prostate components are thought to play a role in bladder outlet obstruction. The first is the relative increased prostate tissue mass. The second component is the prostatic smooth muscle tone.

15 The causative factors of BPH in man have been intensively studied. See Ziada *et al.*, *Urology*, 53: 1-6, 1999. In general, the two most important factors appear to be aging and the presence of functional testes. Although these factors appear to be key to the development of BPH, both appear to be nonspecific.

20 Little is known about the molecular changes in prostate cells associated with the development and progression of BPH. It has been demonstrated that the expression levels of a number of individual genes are changed compared to normal prostate cells. These changes in gene expression include decreased expression of Wilm's tumor gene (WT-1) and increased expression of insulin growth factor II (IGF-II) (Dong *et al.*, *J. Clin. Endocrin. Metab.*, 82(7): 2198-220).

While the changes in the expression levels of a number of individual genes have been identified, the investigation of the global changes in gene expression has not been reported. Accordingly, there exists a need for the investigation of the changes in global gene expression levels as well as the need for the identification of new molecular markers associated with the development and progression of BPH. Furthermore, if intervention is expected to be successful in halting or slowing down BPH, means of accurately assessing the early manifestations of BPH need to be established. One way to accurately assess the early manifestations of BPH is to identify markers which are uniquely associated with disease progression. Likewise, the development of therapeutics to prevent or stop the progression of BPH relies on the identification of genes responsible for BPH growth and function.

## SUMMARY OF THE INVENTION

The present invention is based on the elucidation of the global changes in gene expression in BPH tissue isolated from patients exhibiting different clinical states of prostate hyperplasia as compared to normal prostate tissue as well as the identification of individual genes that are differentially expressed in BPH tissue.

The invention is also based on the discovery of a means of effectively selecting disease-linked drug targets from gene expression results. The invention includes methods of classifying genes whose expression levels are changed in diseased tissues, during disease induction or during disease progression into specific groups. By using this method it is possible to classify genes whose expression are regulated by the same mechanism into the same group, and it is possible to identify representative marker genes by selecting typical genes from each cluster.

The invention includes methods of screening for or identifying an agent that modulates the onset or progression of BPH, comprising: preparing a first gene expression profile of BPH cells; exposing the cells to the agent; preparing a second gene expression profile of the agent exposed cells; and comparing the first and second gene expression profiles. In a preferred embodiment of these methods, the gene expression profile comprises the expression levels of one or more or preferably two or more genes in Tables 1-5. In another preferred embodiment of these methods, the cell is a prostate cell from a BPH patient, a cell line in Table 6, or a derivative thereof.

The invention also includes methods of monitoring a treatment of a patient with BPH, comprising administering a pharmaceutical composition to the patient; preparing a gene expression profile from a prostate cell or tissue sample from the patient; and comparing the patient gene expression profile to a gene expression profile from a normal prostate cell population, a BPH tissue or BPH cells without treatment with the pharmaceutical composition. In preferred embodiments of these methods, the gene expression profile comprises the expression levels of one or more or, preferably two or more genes in Tables 1-5.

The invention also includes methods of diagnosing benign prostatic hyperplasia (BPH) in a subject comprising the step of detecting the level of expression in a tissue or cell sample from the subject of two or more genes from Tables 1-5 (preferably Tables 3-5, and more preferably Table 5); wherein differential expression of the genes is indicative of BPH progression.

The invention further includes methods of detecting the onset or progression of benign prostatic hyperplasia (BPH) in a patient comprising the step of detecting the level of expression in a tissue or cell sample of two or more genes from Tables 1-5 (preferably Tables 3-5, and more preferably Table 5); wherein differential expression of the genes is indicative of BPH progression.

The invention also includes methods of differentiating benign prostatic hyperplasia (BPH) from prostate cancer in a patient comprising the step of detecting the level of expression in a tissue or cell sample of two or more genes from Tables 1-5 (preferably Tables 3-5, and more preferably Table 5); wherein differential expression of the genes is indicative of BPH rather than prostate cancer.

The invention also includes methods of selecting or identifying cells that can be used for drug screening.

All of these methods may include the step of detecting the expression levels of at least about 2, 3, 4, 5, 6, 7, 8, 9, 10 or more genes in any of Tables 1-5, or preferably Table 5. In a preferred embodiment, expression of all of the genes or nearly all of the genes in Tables 1-5, or preferably Table 5, may be detected.

The invention further includes sets of at least two or more probes, wherein each of the probes comprises a sequence that specifically hybridizes to a gene in Tables 1-5 as well as solid supports comprising at least two or more of the probes.

The invention also includes computer systems comprising or linked to a database  
5 containing information identifying the expression level in BPH tissue or cells of a set of genes comprising at least two genes in Tables 1-5, preferably from Table 5; and a user interface to view the information. The database may further comprise sequence information for the genes as well as information identifying the expression level for the set of genes in normal prostate tissue or cells, and prostate cancer tissue. The database may further contain  
10 or be linked to descriptive information from an external database, which information correlates said genes to records in the external database.

The invention further includes methods of using the disclosed computer systems to present information identifying the expression level in a tissue or cell of a set of genes comprising at least one of the genes in Tables 1-5, preferably Table 5, comprising comparing  
15 the expression level of at least one gene in Tables 1-5, preferably Table 5, in the tissue or cell to the level of expression of the gene in the database.

Lastly, the invention includes kits comprising probes or solid supports of the invention. In some embodiments, the kits also contain written materials or software concerning gene expression information for the genes of the invention, preferably in  
20 electronic format.

## BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1. Figure 1 shows the expression of cellular retinol binding protein RNA in various tissues.

25 Figure 2. Figure 2 shows the expression of cellular retinol binding protein RNA in various prostate tissues samples. In all of the figures, "Normal", "-Sym", "Cancer" and "+Sym" refer to normal prostate, BPH without symptoms, prostate cancer, and BPH with symptoms, respectively.

Figure 3. Figure 3 shows the expression of S100 calcium binding protein RNA in  
30 various tissues.

Figure 4. Figure 4 shows the expression of S100 calcium binding protein RNA in various prostate tissue samples.

Figure 5. Figure 5 shows the expression of human prostate-specific membrane antigen (PSMA) RNA in various tissues.

5        Figure 6. Figure 6 shows the expression of PSMA RNA in various prostate tissue samples.

#### DETAILED DESCRIPTION

Many biological functions are accomplished by altering the expression of various  
10       genes through transcriptional (*e.g.* through control of initiation, provision of RNA precursors, RNA processing, etc.) and/or translational control. For example, fundamental biological processes such as cell cycle, cell differentiation and cell death, are often characterized by the variations in the expression levels of groups of genes.

Changes in gene expression also are associated with pathogenesis. For example, the  
15       lack of sufficient expression of functional tumor suppressor genes and/or the over expression of oncogene/protooncogenes could lead to tumorigenesis or hyperplastic growth of cells (Marshall, Cell, 64: 313-326 (1991); Weinberg, Science, 254:1138-1146 (1991)). Thus, changes in the expression levels of particular genes (*e.g.* oncogenes or tumor suppressors) serve as signposts for the presence and progression of various diseases.

20       Monitoring changes in gene expression may also provide certain advantages during drug screening development. Often drugs are screened for the ability to interact with a major target without regard to other effects the drugs have on cells. Often such other effects cause toxicity in the whole animal, which prevent the development and use of the potential drug.

The present inventors have examined tissue from normal prostate, BPH and BPH  
25       prostate tissue immediately adjacent to malignant prostate tissue to identify the global changes in gene expression in BPH. These changes in gene expression, also referred to as expression profiles, provide useful markers for diagnostic uses as well as markers that can be used to monitor disease states, disease progression, toxicity, drug efficacy and drug metabolism.

*Assay Formats*

The genes identified as being differentially expressed in BPH tissue or BPH cells (Tables 1-5) may be used in a variety of nucleic acid detection assays to detect or quantitate the expression level of a gene or multiple genes in a given sample. For example, traditional Northern blotting, nuclease protection, RT-PCR and differential display methods may be used for detecting gene expression levels. Those methods are useful for some embodiments of the invention, particularly when smaller numbers of genes are assayed. For instance, when fewer than 50 genes are assayed, RT-PCR techniques can be used to prepare high-throughput assays. However, methods and assays of the invention are most efficiently designed with hybridization-based methods for detecting the expression of a large number of genes.

Any hybridization assay format may be used, including solution-based and solid support-based assay formats. Solid supports containing oligonucleotide probes for differentially expressed genes of the invention can be filters, polyvinyl chloride dishes, silicon or glass based beads or chips, etc. Such supports and hybridization methods are widely available, for example, those disclosed by Beattie (WO 95/11755). Any solid surface to which oligonucleotides can be bound, either directly or indirectly, either covalently or non-covalently, can be used.

A preferred solid support is a high density array or DNA chip. These contain a particular oligonucleotide probe in a predetermined location on the array. Each predetermined location may contain more than one molecule of the probe, but each molecule within the predetermined location has an identical sequence. Such predetermined locations are termed features. There may be, for example, from 2, 10, 100, 1000 to 10,000, 100,000 or 400,000 of such features on a single solid support. The solid support, or the area within which the probes are attached may be on the order of about a square centimeter.

Oligonucleotide probe arrays for expression monitoring can be made and used according to any technique known in the art (see for example, Lockhart *et al.*, Nat. Biotechnol. (1996) 14, 1675-1680; McGall *et al.*, *Proc. Nat. Acad. Sci. USA* (1996) 93, 13555-13460). Such probe arrays may contain at least two or more oligonucleotides that are complementary to or hybridize to two or more of the genes described in Tables 1-5. For instance, such arrays may contain oligonucleotides that are complementary or hybridize to at least about 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 50, 70 or more the genes described herein.

The genes which are assayed according to the present invention are typically in the form of mRNA or reverse transcribed mRNA. The genes may be cloned or not. The genes may be amplified or not. The cloning itself does not appear to bias the representation of genes within a population. However, it may be preferable to use polyA<sup>+</sup> RNA as a source, as it can be used with less processing steps.

The sequences and related information of the genes described herein are available in the public databases. Tables 1-5 provide the Accession numbers and name for each of the sequences. Each Accession Number corresponds to a sequence in the attached sequence listing. The sequences and related information of the genes listed in the Tables according to their GenBank identifiers are expressly incorporated herein as of the filing date of this application, as are sequences in the databases related to those herein described, such as fragments, variant sequences, etc. (see: [www.ncbi.nlm.nih.gov/](http://www.ncbi.nlm.nih.gov/)).

Probes based on the sequences of the genes described above may be prepared by any commonly available method. Oligonucleotide probes for interrogating the tissue or cell sample are preferably of sufficient length to specifically hybridize only to appropriate, complementary genes or transcripts. Typically the oligonucleotide probes will be at least 10, 12, 14, 16, 18, 20 or 25 nucleotides in length. In some cases longer probes of at least 30, 40, or 50 nucleotides will be desirable.

As used herein, oligonucleotide sequences that are complementary to one or more of the genes described in Tables 1-5 refer to oligonucleotides that are capable of hybridizing under stringent conditions to at least part of the nucleotide sequence of said genes. Such hybridizable oligonucleotides will typically exhibit at least about 75% sequence identity at the nucleotide level to said genes, preferably about 80% or 85% sequence identity or more preferably about 90% or 95% or more sequence identity to said genes.

“Bind(s) substantially” refers to complementary hybridization between a probe nucleic acid and a target nucleic acid and embraces minor mismatches that can be accommodated by reducing the stringency of the hybridization media to achieve the desired detection of the target polynucleotide sequence.

The terms “background” or “background signal intensity” refer to hybridization signals resulting from non-specific binding, or other interactions, between the labeled target nucleic acids and components of the oligonucleotide array (*e.g.*, the oligonucleotide probes, control probes, the array substrate, *etc.*). Background signals may also be produced by

intrinsic fluorescence of the array components themselves. A single background signal can be calculated for the entire array, or a different background signal may be calculated for each target nucleic acid. In a preferred embodiment, background is calculated as the average hybridization signal intensity for the lowest 5% to 10% of the probes in the array, or, where a  
5 different background signal is calculated for each target gene, for the lowest 5% to 10% of the probes for each gene. Of course, one of skill in the art will appreciate that where the probes to a particular gene hybridize well and thus appear to be specifically binding to a target sequence, they should not be used in a background signal calculation. Alternatively, background may be calculated as the average hybridization signal intensity produced by  
10 hybridization to probes that are not complementary to any sequence found in the sample (*e.g.* probes directed to nucleic acids of the opposite sense or to genes not found in the sample such as bacterial genes where the sample is mammalian nucleic acids). Background can also be calculated as the average signal intensity produced by regions of the array that lack probes.

The phrase “hybridizing specifically to” refers to the binding, duplexing, or  
15 hybridizing of a molecule substantially to or only to a particular nucleotide sequence or sequences under stringent conditions when that sequence is present in a complex mixture (*e.g.*, total cellular DNA or RNA).

Assays and methods of the invention may utilize available formats to simultaneously screen at least about 100, preferably about 1000, more preferably about 10,000 and most  
20 preferably about 1,000,000 different nucleic acid hybridizations.

As used herein a “probe” is defined as a nucleic acid molecule, capable of binding to a target nucleic acid of complementary sequence through one or more types of chemical bonds, usually through complementary base pairing, usually through hydrogen bond formation. As used herein, a probe may include natural (*i.e.*, A, G, U, C, or T) or modified  
25 bases (7-deazaguanosine, inosine, *etc.*). In addition, the bases in probes may be joined by a linkage other than a phosphodiester bond, so long as it does not interfere with hybridization. Thus, probes may be peptide nucleic acids in which the constituent bases are joined by peptide bonds rather than phosphodiester linkages.

The term “stringent conditions” refers to conditions under which a probe will  
30 hybridize to its target subsequence, but with only insubstantial hybridization to other sequences or to other sequences such that the difference may be identified. Stringent conditions are sequence-dependent and will be different in different circumstances. Longer

sequences hybridize specifically at higher temperatures. Generally, stringent conditions are selected to be about 5°C lower than the thermal melting point ( $T_m$ ) for the specific sequence at a defined ionic strength and pH.

Typically, stringent conditions will be those in which the salt concentration is at least about 0.01 to 1.0 M Na ion concentration (or other salts) at pH 7.0 to 8.3 and the temperature is at least about 30°C for short probes (*e.g.*, 10 to 50 nucleotide). Stringent conditions may also be achieved with the addition of destabilizing agents such as formamide.

The “percentage of sequence identity” or “sequence identity” is determined by comparing two optimally aligned sequences or subsequences over a comparison window or span, wherein the portion of the polynucleotide sequence in the comparison window may optionally comprise additions or deletions (*i.e.*, gaps) as compared to the reference sequence (which does not comprise additions or deletions) for optimal alignment of the two sequences. The percentage is calculated by determining the number of positions at which the identical submit (*e.g.* nucleic acid base or amino acid residue) occurs in both sequences to yield the number of matched positions, dividing the number of matched positions by the total number of positions in the window of comparison and multiplying the result by 100 to yield the percentage of sequence identity. Percentage sequence identity when calculated using the programs GAP or BESTFIT (see below) is calculated using default gap weights.

## *Probe design*

One of skill in the art will appreciate that an enormous number of array designs are suitable for the practice of this invention. The high density array will typically include a number of probes that specifically hybridize to the sequences of interest. See WO 99/32660 for methods of producing probes for a given gene or genes. In addition, in a preferred embodiment, the array will include one or more control probes.

High density array chips of the invention include “test probes.” Test probes could be oligonucleotides that range from about 5 to about 500 or 5 to about 45 nucleotides, more preferably from about 10 to about 40 nucleotides and most preferably from about 15 to about 40 nucleotides in length. In other particularly preferred embodiments the probes are 20 or 25 nucleotides in length. In another preferred embodiment, test probes are double or single strand DNA sequences. DNA sequences are isolated or cloned from natural sources or

amplified from natural sources using native nucleic acid as templates. These probes have sequences complementary to particular subsequences of the genes whose expression they are designed to detect. Thus, the test probes are capable of specifically hybridizing to the target nucleic acid they are to detect (the genes of Tables 1-5).

5           The term “perfect match probe” refers to a probe that has a sequence that is perfectly complementary to a particular target sequence. The probe is typically perfectly complementary to a portion (subsequence) of the target sequence. The perfect match (PM) probe can be a “test probe”, a “normalization control” probe, an expression level control probe and the like. A perfect match control or perfect match probe is, however, distinguished  
10       from a “mismatch control” or “mismatch probe.”

In addition to test probes that bind the target nucleic acid(s) of interest, the high density array can contain a number of control probes. The control probes fall into three categories referred to herein as 1) normalization controls; 2) expression level controls; and 3) mismatch controls.

15           Normalization controls are oligonucleotide or other nucleic acid probes that are complementary to labeled reference oligonucleotides or other nucleic acid sequences that are added to the nucleic acid sample to be screened. The signals obtained from the normalization controls after hybridization provide a control for variations in hybridization conditions, label intensity, “reading” efficiency and other factors that may cause the signal of a perfect  
20       hybridization to vary between arrays. In a preferred embodiment, signals (*e.g.*, fluorescence intensity) read from all other probes in the array are divided by the signal (*e.g.*, fluorescence intensity) from the control probes thereby normalizing the measurements.

Virtually any probe may serve as a normalization control. However, it is recognized that hybridization efficiency varies with base composition and probe length. Preferred  
25       normalization probes are selected to reflect the average length of the other probes present in the array, however, they can be selected to cover a range of lengths. The normalization control(s) can also be selected to reflect the (average) base composition of the other probes in the array, however in a preferred embodiment, only one or a few probes are used and they are selected such that they hybridize well (*i.e.*, no secondary structure) and do not match any  
30       target-specific probes.

Expression level controls are probes that hybridize specifically with constitutively expressed genes in the biological sample. Virtually any constitutively expressed gene

provides a suitable target for expression level controls. Typically expression level control probes have sequences complementary to subsequences of constitutively expressed “housekeeping genes” including, but not limited to an actin gene, the transferrin receptor gene, the GAPDH gene, and the like.

5 Mismatch controls or mismatch probes may also be provided for the probes to the target genes, for expression level controls or for normalization controls. Mismatch controls are oligonucleotide probes or other nucleic acid probes identical to their corresponding test or control probes except for the presence of one or more mismatched bases. A mismatched base is a base selected so that it is not complementary to the corresponding base in the target  
10 sequence to which the probe would otherwise specifically hybridize. One or more mismatches are selected such that under appropriate hybridization conditions (*e.g.*, stringent conditions) the test or control probe would be expected to hybridize with its target sequence, but the mismatch probe would not hybridize (or would hybridize to a significantly lesser extent). Preferred mismatch probes contain a central mismatch. Thus, for example, where a  
15 probe is a 20 mer, a corresponding mismatch probe will have the identical sequence except for a single base mismatch (*e.g.*, substituting a G, a C or a T for an A) at any of positions 6 through 14 (the central mismatch).

Mismatch probes thus provide a control for non-specific binding or cross hybridization to a nucleic acid in the sample other than the target to which the probe is  
20 directed. Mismatch probes also indicate whether a hybridization is specific or not. For example, if the target is present the perfect match probes should be consistently brighter than the mismatch probes. In addition, if all central mismatches are present, the mismatch probes can be used to detect a mutation. The difference in intensity between the perfect match and the mismatch probe provides a good measure of the concentration of the hybridized material.

### 25 *Nucleic Acid Samples*

As is apparent to one of ordinary skill in the art, nucleic acid samples used in the methods and assays of the invention may be prepared by any available method or process. Methods of isolating total mRNA are well known to those of skill in the art. For example,  
30 methods of isolation and purification of nucleic acids are described in detail in Chapter 3 of *Laboratory Techniques in Biochemistry and Molecular Biology: Hybridization With Nucleic Acid Probes*, Part I Theory and Nucleic Acid Preparation, P. Tijssen, Ed., Elsevier, N.Y.

(1993). Such samples include RNA samples, but also include cDNA synthesized from a mRNA sample isolated from a cell or tissue of interest. Such samples also include DNA amplified from the cDNA, and RNA transcribed from the amplified DNA. One of skill in the art would appreciate that it is desirable to inhibit or destroy RNase present in homogenates before homogenates can be used.

Biological samples may be of any biological tissue or fluid or cells from any organism as well as cells raised in vitro, such as cell lines and tissue culture cells. Biological samples may also include sections of tissues, such as frozen sections or formalin fixed sections taken for histological purposes. Frequently, the sample will be a "clinical sample" which is a sample derived from a patient. Typical clinical samples include, but are not limited to prostate tissue, urine, sputum, blood, blood-cells (*e.g.*, white cells or peripheral blood leukocytes (PBL)), tissue or fine needle biopsy samples, peritoneal fluid, and pleural fluid, or cells therefrom.

#### *Forming High Density Arrays.*

Methods of forming high density arrays of oligonucleotides with a minimal number of synthetic steps are known. The oligonucleotide analogue array can be synthesized on a solid substrate by a variety of methods, including, but not limited to, light-directed chemical coupling, and mechanically directed coupling. See Pirrung *et al.*, U.S. Patent No. 5,143, 854.

In brief, the light-directed combinatorial synthesis of oligonucleotide arrays on a glass surface proceeds using automated phosphoramidite chemistry and chip masking techniques. In one specific implementation, a glass surface is derivatized with a silane reagent containing a functional group, *e.g.*, a hydroxyl or amine group blocked by a photolabile protecting group. Photolysis through a photolithographic mask is used selectively to expose functional groups which are then ready to react with incoming 5' photoprotected nucleoside phosphoramidites. The phosphoramidites react only with those sites which are illuminated (and thus exposed by removal of the photolabile blocking group). Thus, the phosphoramidites only add to those areas selectively exposed from the preceding step. These steps are repeated until the desired array of sequences have been synthesized on the solid surface. Combinatorial synthesis of different oligonucleotide analogues at different locations on the array is determined by the pattern of illumination during synthesis and the order of addition of coupling reagents.

In addition to the foregoing, additional methods which can be used to generate an array of oligonucleotides on a single substrate are described WO 93/09668. High density nucleic acid arrays can also be fabricated by depositing premade or natural nucleic acids in predetermined positions. Synthesized or natural nucleic acids are deposited on specific locations of a substrate by light directed targeting and oligonucleotide directed targeting. Another embodiment uses a dispenser that moves from region to region to deposit nucleic acids in specific spots.

### *Hybridization*

Nucleic acid hybridization simply involves contacting a probe and target nucleic acid under conditions where the probe and its complementary target can form stable hybrid duplexes through complementary base pairing. See WO 99/32660. The nucleic acids that do not form hybrid duplexes are then washed away leaving the hybridized nucleic acids to be detected, typically through detection of an attached detectable label. It is generally recognized that nucleic acids are denatured by increasing the temperature or decreasing the salt concentration of the buffer containing the nucleic acids. Under low stringency conditions (*e.g.*, low temperature and/or high salt) hybrid duplexes (*e.g.*, DNA:DNA, RNA:RNA, or RNA:DNA) will form even where the annealed sequences are not perfectly complementary.

Thus specificity of hybridization is reduced at lower stringency. Conversely, at higher stringency (*e.g.*, higher temperature or lower salt) successful hybridization tolerates fewer mismatches. One of skill in the art will appreciate that hybridization conditions may be selected to provide any degree of stringency. In a preferred embodiment, hybridization is performed at low stringency in this case in 6X SSPE-T at 37°C (0.005% Triton X-100) to ensure hybridization and then subsequent washes are performed at higher stringency (*e.g.*, 1X SSPE-T at 37°C) to eliminate mismatched hybrid duplexes. Successive washes may be performed at increasingly higher stringency (*e.g.*, down to as low as 0.25 X SSPET at 37°C to 50°C) until a desired level of hybridization specificity is obtained. Stringency can also be increased by addition of agents such as formamide. Hybridization specificity may be evaluated by comparison of hybridization to the test probes with hybridization to the various controls that can be present (*e.g.*, expression level control, normalization control, mismatch controls, *etc.*).

In general, there is a tradeoff between hybridization specificity (stringency) and signal intensity. Thus, in a preferred embodiment, the wash is performed at the highest stringency that produces consistent results and that provides a signal intensity greater than approximately 10% of the background intensity. Thus, in a preferred embodiment, the hybridized array may be washed at successively higher stringency solutions and read between each wash. Analysis of the data sets thus produced will reveal a wash stringency above which the hybridization pattern is not appreciably altered and which provides adequate signal for the particular oligonucleotide probes of interest.

### *Signal Detection*

The hybridized nucleic acids are typically detected by detecting one or more labels attached to the sample nucleic acids. The labels may be incorporated by any of a number of means well known to those of skill in the art. See WO 99/32660.

### *Databases*

The present invention includes relational databases containing sequence information, for instance for the genes of Tables 1-5, as well as gene expression information in various prostate tissue samples. Databases may also contain information associated with a given sequence or tissue sample such as descriptive information about the gene associated with the sequence information, metabolic pathway information for the gene or descriptive information concerning the clinical status of the tissue sample, or the patient from which the sample was derived. Such information for the patient may include, but is not limited to sex, age, disease status, general health information, surgical or treatment status, PSA levels, as well as information concerning the patient's clinical symptoms. The database may be designed to include different parts, for instance a sequence database and a gene expression database. Methods for the configuration and construction of such databases are widely available, for instance, see U.S. Patent 5,953,727, which is herein incorporated by reference in its entirety.

The databases of the invention may be linked to an outside or external database. In a preferred embodiment, as described in Tables 1-5, the external database is GenBank and the associated databases maintained by the National Center for Biotechnology Information (NCBI).

Any appropriate computer platform may be used to perform the necessary comparisons between sequence information, gene expression information and any other information in the database or provided as an input. For example, a large number of computer workstations are available from a variety of manufacturers, such as those available from Silicon Graphics. Client/server environments, database servers and networks are also widely available and appropriate platforms for the databases of the invention.

The databases of the invention may be used to produce, among other things, electronic Northern blots that allow the user to determine the cell type or tissue in which a given gene is expressed and to allow determination of the abundance or expression level of a given gene in a particular tissue or cell.

The databases of the invention may also be used to present information identifying the expression level in a tissue or cell of a set of genes comprising at least two of the genes in Tables 1-5, comprising the step of comparing the expression level of at least one gene in Tables 1-5 found or detected in the tissue to the level of expression of the gene in the database. Such methods may be used to predict the hyperplastic state of a given tissue by comparing the level of expression of a gene or genes in Tables 1-5 from a sample to the expression levels found in normal prostate cells, BPH cells or tissue and/or malignant or cancerous prostate tissue. Such methods may also be used in the drug or agent screening assays as described below.

#### *Selection of BPH-Associated Genes*

BPH associated genes may be identified or selected by any available method, including subtractive hybridization protocols, differential display protocols and high-throughput hybridization formats, including oligonucleotide and cDNA microarray technologies.

Unprocessed or raw expression levels may be normalized, standardized and/or analyzed by any available computational method, including the expression level normalization, analysis and clustering methods herein described. The normalization method as described in Example 4 may be combined with any further analysis method, including any clustering methods available in the art.

*Diagnostic Uses for the BPH Markers*

As described above, the genes and gene expression information provided in Tables 1-5 may be used as diagnostic markers for the prediction or identification of the hyperplastic state of a prostate or other tissue. For instance, a prostate tissue or other patient sample may be assayed by any of the methods described above, and the expression levels from a gene or genes from Tables 1-5 may be compared to the expression levels found in normal prostate tissue, BPH tissue or BPH tissue from a patient with metastatic or nonmetastatic prostate cancer. In some instances, patient PBLs may be used as the patient sample. The comparison of expression data, as well as available sequence or other information may be done by researcher or diagnostician or may be done with the aid of a computer and databases as described above.

*Use of the BPH Markers for Monitoring Disease Progression*

As described above, the genes and gene expression information provided in Tables 1-5 may also be used as markers for the monitoring of disease progression, such as the development of BPH. For instance, a prostate tissue or other patient sample may be assayed by any of the methods described above, and the expression levels from a gene or genes from Tables 1-5 may be compared to the expression levels found in normal prostate tissue, BPH tissue or BPH tissue from a patient with metastatic or nonmetastatic prostate cancer. The comparison of the expression data, as well as available sequence or other information may be done by researcher or diagnostician or may be done with the aid of a computer and databases as described above.

The BPH markers of the invention may also be used to track or predict the progress or efficacy of a treatment regime in a patient. For instance, a patient's progress or response to a given drug may be monitored by creating a gene expression profile from a tissue or cell sample after treatment or administration of the drug. The gene expression profile may then be compared to a gene expression profile prepared from normal cells or tissue, for instance, normal prostate tissue. The gene expression profile may also be compared to a gene expression profile prepared from BPH or malignant prostate cells, or from tissue or cells from the same patient before treatment. The gene expression profile may be made from at least one gene, preferably more than one gene, and most preferably all or nearly all of the genes in Tables 1-5.

*Use of the BPH Markers for Drug Screening*

According to the present invention, the genes identified in Tables 1-5 can be used as markers to screen for potential therapeutic agents or compounds to treat BPH or prostate cancer. A candidate drug or agent can be screened for the ability to stimulate the transcription or expression of a given marker or to down-regulate or counteract the transcription or expression of a marker or markers. Compounds that modulate the expression level of single gene and also compounds that modulate the expression level of multiple genes from levels associated with a specific disease state to a normal state can be screened by using the markers and profiles identified herein.

According to the present invention, one can also compare the specificity of drug's effects by looking at the number of markers which are differentially expressed after drug exposure and comparing them. More specific drugs will have less transcriptional targets. Similar sets of markers identified for two drugs may indicate a similarity of effects.

Assays to monitor the expression of a marker or markers as defined in Tables 1-5 may utilize any available means of monitoring for changes in the expression level of the nucleic acids of the invention. As used herein, an agent is said to modulate the expression of a nucleic acid of the invention if it is capable of up- or down-regulating expression of the nucleic acid in a cell.

In one assay format, gene chips containing probes to at least 2 genes from Tables 1-5 may be used to directly monitor or detect changes in gene expression in the treated or exposed cell as described in more detail above. In another format, the changes of mRNA expression level can be detected using QuantiGene technology (Warrior *et. al.* (2000) *J. Biomolecular Screening*, 5, 343-351). Specific probes used for QuantiGene can be designed and synthesized to one or more genes from Tables 1-5. Cells treated with compounds are lysed by lysis buffer. The amount of target mRNA can be detected as a luminescence intensity using target specific probes.

In another format, cell lines that contain reporter gene fusions between the open reading frame and/or 5'/3' regulatory regions of a gene in Tables 1-5 and any assayable fusion partner may be prepared. Numerous assayable fusion partners are known and readily available including the firefly luciferase gene and the gene encoding chloramphenicol

acetyltransferase (Alam *et al.* (1990) *Anal. Biochem.* 188:245-254). Cell lines containing the reporter gene fusions are then exposed to the agent to be tested under appropriate conditions and time. Differential expression of the reporter gene between samples exposed to the agent and control samples identifies agents which modulate the expression of the nucleic acid.

5 Additional assay formats may be used to monitor the ability of the agent to modulate the expression of a gene identified in Tables 1-5. For instance, as described above, mRNA expression may be monitored directly by hybridization of probes to the nucleic acids of the invention. Cell lines are exposed to the agent to be tested under appropriate conditions and time and total RNA or mRNA is isolated by standard procedures such those disclosed in  
10 Sambrook *et al.* (*Molecular Cloning: A Laboratory Manual*, 2nd Ed. Cold Spring Harbor Laboratory Press, 1989).

In another assay format, cells or cell lines are first identified which express the gene products of the invention physiologically (see below). Cell and/or cell lines so identified would be expected to comprise the necessary cellular machinery such that the fidelity of  
15 modulation of the transcriptional apparatus is maintained with regard to exogenous contact of agent with appropriate surface transduction mechanisms and/or the cytosolic cascades. Such cell lines may be, but are not required to be, prostate derived. Further, such cells or cell lines may be transduced or transfected with an expression vehicle (*e.g.*, a plasmid or viral vector) construct comprising an operable non-translated 5'-promoter containing end of the structural  
20 gene encoding the instant gene products fused to one or more antigenic fragments, which are peculiar to the instant gene products, wherein said fragments are under the transcriptional control of said promoter and are expressed as polypeptides whose molecular weight can be distinguished from the naturally occurring polypeptides or may further comprise an immunologically distinct tag or some other detectable marker or tag. Such a process is well  
25 known in the art (see Maniatis).

Cells or cell lines transduced or transfected as outlined above are then contacted with agents under appropriate conditions; for example, the agent comprises a pharmaceutically acceptable excipient and is contacted with cells comprised in an aqueous physiological buffer such as phosphate buffered saline (PBS) at physiological pH, Eagles balanced salt solution  
30 (BSS) at physiological pH, PBS or BSS comprising serum or conditioned media comprising PBS or BSS and/or serum incubated at 37°C. Said conditions may be modulated as deemed necessary by one of skill in the art. Subsequent to contacting the cells with the agent, said

cells are disrupted and the polypeptides of the lysate are fractionated such that a polypeptide fraction is pooled and contacted with an antibody to be further processed by immunological assay (*e.g.*, ELISA, immunoprecipitation or Western blot). The pool of proteins isolated from the “agent-contacted” sample is then compared with a control sample where only the  
5 excipient is contacted with the cells and an increase or decrease in the immunologically generated signal from the “agent-contacted” sample compared to the control is used to distinguish the effectiveness of the agent.

Another embodiment of the present invention provides methods for identifying agents that modulate at least one activity of a protein(s) encoded by the genes in Tables 1-5. Such  
10 methods or assays may utilize any means of monitoring or detecting the desired activity.

In one format, the relative amounts of a protein of the invention between a cell population that has been exposed to the agent to be tested compared to an un-exposed control cell population may be assayed. In this format, probes such as specific antibodies are used to monitor the differential expression of the protein in the different cell populations. Cell lines  
15 or populations are exposed to the agent to be tested under appropriate conditions and time. Cellular lysates may be prepared from the exposed cell line or population and a control, unexposed cell line or population. The cellular lysates are then analyzed with the probe, such as a specific antibody.

Agents that are assayed in the above methods can be randomly selected or rationally  
20 selected or designed. As used herein, an agent is said to be randomly selected when the agent is chosen randomly without considering the specific sequences involved in the association of the a protein of the invention alone or with its associated substrates, binding partners, *etc.* An example of randomly selected agents is the use a chemical library or a peptide combinatorial library, or a growth broth of an organism.

As used herein, an agent is said to be rationally selected or designed when the agent is  
25 chosen on a nonrandom basis which takes into account the sequence of the target site and/or its conformation in connection with the agent’s action. Agents can be rationally selected or rationally designed by utilizing the peptide sequences that make up these sites. For example, a rationally selected peptide agent can be a peptide whose amino acid sequence is identical to  
30 or a derivative of any functional consensus site.

The agents of the present invention can be, as examples, peptides, small molecules, vitamin derivatives, as well as carbohydrates. Dominant negative proteins, DNAs encoding

these proteins, antibodies to these proteins, peptide fragments of these proteins or mimics of these proteins may be introduced into cells to affect function. "Mimic" used herein refers to the modification of a region or several regions of a peptide molecule to provide a structure chemically different from the parent peptide but topographically and functionally similar to the parent peptide (see Grant GA. in: Meyers (ed.) Molecular Biology and Biotechnology (New York, VCH Publishers, 1995), pp. 659-664). A skilled artisan can readily recognize that there is no limit as to the structural nature of the agents of the present invention.

#### *Cells used for Multi Gene Screening*

Many kinds of cells such as primary cells and cell lines can be used for the drug screening methods of the invention. Cells or cell lines derived from prostatic tissues are preferred because the innate gene expression mechanisms of these cells often resemble those of prostatic tissues. Cells used for drug screening can be selected by assaying for the expression of one or more of the marker genes listed in Tables 1-5. The cells which differentially express one or more, or preferably nearly all of the marker genes listed in Tables 1-5 are preferred cells or cell lines for the methods of the invention (see Table 6).

#### *Kits*

The invention further includes kits combining, in different combinations, high-density oligonucleotide arrays, reagents for use with the arrays, signal detection and array-processing instruments, gene expression databases and analysis and database management software described above. The kits may be used, for example, to diagnose the disease state of a tissue or cell sample, to monitor the progression of prostate disease states, to identify genes that show promise as new drug targets and to screen known and newly designed drugs as discussed above.

The databases packaged with the kits are a compilation of expression patterns from human and laboratory animal genes and gene fragments (corresponding to the genes of Tables 1-5). In particular, the database software and packaged information include the expression results of Tables 1-5 that can be used in the assays and methods as herein described. In another format, database access is provided to the purchaser or user through an electronic means, e.g., via the Internet or by direct dial-in access.

The kits may be used in the pharmaceutical industry, where the need for early drug testing is strong due to the high costs associated with drug development, but where bioinformatics, in particular gene expression informatics, is still lacking. These kits will reduce the costs, time and risks associated with traditional new drug screening using cell cultures and laboratory animals. The results of large-scale drug screening of pre-grouped patient populations, pharmacogenomics testing, can also be applied to select drugs with greater efficacy and fewer side-effects. The kits may also be used by smaller biotechnology companies and research institutes who do not have the facilities for performing such large-scale testing themselves.

Databases and software designed for use with microarrays is discussed in Balaban *et al.*, U.S. Patent Nos. 6,229,911, a computer-implemented method for managing information, stored as indexed tables, collected from small or large numbers of microarrays, and 6,185,561, a computer-based method with data mining capability for collecting gene expression level data, adding additional attributes and reformatting the data to produce answers to various queries. Chee *et al.*, U.S. Patent No. 5,974,164, disclose a software-based method for identifying mutations in a nucleic acid sequence based on differences in probe fluorescence intensities between wild type and mutant sequences that hybridize to reference sequences.

Without further description, it is believed that one of ordinary skill in the art can, using the preceding description and the following illustrative examples, make and utilize the genes, chips, *etc.* of the present invention and practice the claimed methods. The following working examples therefore, specifically point out the preferred embodiments of the present invention, and are not to be construed as limiting in any way the remainder of the disclosure.

## EXAMPLES

### *Example 1: Gene chip expression analysis*

Human tissue was obtained from the transitional zone of the prostate (the junction between the ejaculatory duct and the prostatic urethra) in biopsy samples from normal individuals and from patients with BPH or prostate cancer. BPH was defined histologically in all samples. Normal tissue and asymptomatic BPH samples came from individuals who died of trauma and did not report symptoms. Because BPH is a disease associated with aging, two groups of normal individuals were identified, group 1, ages 20 or under, and group

2, ages 30-50. Patients having BPH with symptoms were defined as those with a need for frequent urination. In these patients, a radical prostatectomy had been performed. Prostate cancer patients provided age-matched tissue samples for symptomatic BPH patients, but were without symptoms and without cancer in the transitional zone under histological examination.

5           Microarray sample preparation was conducted with minor modifications, following the protocols set forth in the Affymetrix GeneChip Expression Analysis Manual. Frozen tissue was ground to a powder using a Spex Certiprep 6800 Freezer Mill. Total RNA was extracted with Trizol (GibcoBRL) utilizing the manufacturer's protocol. The total RNA yield for each sample was 200-500 µg per 300 mg tissue weight. mRNA was isolated using the  
10   Oligotex mRNA Midi kit (Qiagen) followed by ethanol precipitation. Double stranded cDNA was generated from mRNA using the SuperScript Choice system (GibcoBRL). First strand cDNA synthesis was primed with a T7-(dT24) oligonucleotide. The cDNA was phenol-chloroform extracted and ethanol precipitated to a final concentration of 1 µg/ml. From 2 µg of cDNA, cRNA was synthesized using Ambion's T7 MegaScript *in vitro*  
15   Transcription Kit.

          To biotin label the cRNA, nucleotides Bio-11-CTP and Bio-16-UTP (Enzo Diagnostics) were added to the reaction. Following a 37°C incubation for six hours, impurities were removed from the labeled cRNA following the RNeasy Mini kit protocol (Qiagen). cRNA was fragmented (fragmentation buffer consisting of 200 mM Tris-acetate,  
20   pH 8.1, 500 mM KOAc, 150 mM MgOAc) for thirty-five minutes at 94°C. Following the Affymetrix protocol, 55 µg of fragmented cRNA was hybridized on the Affymetrix Human 42K array set for twenty-four hours at 60 rpm in a 45°C hybridization oven. The chips were washed and stained with Streptavidin Phycoerythrin (SAPE) (Molecular Probes) in Affymetrix fluidics stations. To amplify staining, SAPE solution was added twice with an  
25   anti-streptavidin biotinylated antibody (Vector Laboratories) staining step in between. Hybridization to the probe arrays was detected by fluorometric scanning (Hewlett Packard Gene Array Scanner). Data was analyzed using Affymetrix GeneChip version 3.0 and Expression Data Mining Tool (EDMT) software (version 1.0).

          Differential expression of genes between the BPH and normal prostate samples were  
30   determined using the Affymetrix GeneChip human gene chip set by the following criteria: 1) For each gene, Affymetrix GeneChip average difference values were determined by standard Affymetrix EDMT software algorithms, which also made "Absent" (=not specifically

detected as gene expression), “Present” (=detected) or “Marginal” (=not clearly Absent or Present) calls for each GeneChip element; 2) all AveDiff values which were less than +20 (positive 20) were raised to a floor of +20 so that fold change calculations could be made where values were not already greater than or equal to +20; 3) median levels of expression were compared between the normal control group and the BPH with symptoms disease group to obtain greater than or equal 2-fold up/down values; 4) The median value for the higher expressing group needed to be greater or equal to 200 average difference units in order to be considered for statistical significance; 5) Genes passing the criteria of #1-4 were analyzed for statistical significance using a two-tailed T test and deemed statistically significant if  $p < 0.05$ . Tables 1 and 2 list the genes and their levels of differential expression (compared to normal samples) in BPH tissue from patients with symptoms of BPH and in BPH tissue immediately adjacent to malignant prostate tissue isolated from male patients.

### ***Example 2 : Expression profile analysis***

Gene expression profiles between normal sample and BPH patient samples were determined by using the following samples: 10 normal; 7 BPH without symptoms; 8 BPH with cancer; and 8 BPH with symptoms. Gene expression profiles were prepared using the 42K Affymetrix Gene Chip set. The methods used were the same as described in Example 1 with the exception of the criteria to select the marker genes.

The criteria used in this study were as follows; 1) For each gene, Affymetrix GeneChip average difference values were determined by standard Affymetrix EDMT software algorithms, which also made “Absent” (=not specifically detected as gene expression), “Present” (=detected) or “Marginal” (=not clearly Absent or Present) calls for each GeneChip element; 2) all AveDiff values which were less than +20 (positive 20) were raised to a floor of +20 so that fold change calculations could be made where values were not already greater than or equal to +20; 3) mean levels of expression were compared between the normal control group and the BPH with symptoms disease group; 4) genes were arranged by the fold change starting with the largest one (Fold change calculation was determined by using logarithmic values in Example 2); and 5) the top 200 up-regulated genes and bottom 200 down-regulated genes were selected. The genes identified in this study are listed in Tables 3 (normal vs. BPH with symptoms, up regulated) and 4 (normal vs. BPH with symptoms, down regulated, values are negative fold-change from normal).

### ***Example 3 : Selection of Cell lines used for Multi Gene Screening***

A number of cultured cell lines were tested to determine the similarity in gene expression profiles to BPH tissue. Cells were cultured in 6-well plates using the appropriate medium for each cell line. After reaching 90% confluency, cells were lysed with Trizol (GiboBRL) and total RNA was extracted. mRNA was then isolated, cDNA and cRNA was synthesized, and gene expression levels were determined by the Affymetrix Human 42K Gene Chip set as described in more detail above.

The gene expression profiles were compared with those of prostatic tissue samples. A panel of 61 genes whose expression levels were up-regulated in BPH with symptoms compared with normal samples and with small variation among samples (within BPH samples and within normal samples) were assayed. The group of genes whose signal intensity was more than 100 in each cell line is summarized in Table 1. A panel of 43 genes whose expression levels were down-regulated in BPH patient with small variation among samples was also assayed. The group of genes whose signal intensity in Affymetrix Gene Chip was "Present call" is also included in Table 1. Similarly, genes whose expression level is up- or down-regulated in patients with BPH and cancer, compared to normal controls, are listed in Table 2.

Forty-eight to 58% of genes applied for this analysis were expressed in the cell lines of Table 6. These results indicate that cell lines, BRF-55T (Biological Research Faculty & Facility Inc.), PZ-HPV7 (ATCC; CRL-2221), BPH-1 (S.W. Hayward *et al.*, *In Vitro Cell Dev. Biol.* 31A, 14-24, 1995) and LNCaP (ATCC; CRL-1740) can be used as a BPH – like cell population to screen for compounds which are capable of modulating gene expression profiles from the disease state to a normal state using the genes of Tables 1-5. In particular, BRF-55T is a useful cell line for screening in the assays of the invention, because 58% genes of the assayed genes were differentially expressed in BRF-55T as compared to BPH with symptoms tissue.

#### ***Example 4 : Cluster analysis of up- or down-regulated genes in BPH***

Cluster analysis of the expression results from a large number of genes is often problematic due to variations in the standardization of the gene expression data. To compensate for these variations, a subset of differentially expressed genes was selected by a modified analysis procedure.

In a first step, a gene list comparing normal vs. disease samples was generated by two kinds of comparisons. First, genes were selected that displayed a greater than or equal to

mean 2-fold up or down regulation using average difference expression values and with  $p < 0.05$ . Second, genes were selected by ANOVA comparing the normal group of samples with the disease group and with a  $t$  value of  $>3$  in the up or down direction. These lists were then combined to create an expression profile characteristic of normal controls and one  
5 characteristic of disease in which specific genes are found to be up or down regulated in disease when compared with normal controls.

In preparation for clustering analysis to identify subgroups of genes that show statistically similar expression patterns, average difference values for the selected genes were normalized across all samples (normal and disease combined) using the following formula:

10 
$$\text{Normalization data} = (X - X_{\text{mean}}) / S_x$$

Where  $S_x$  is variance (:STD)

This converts the mean expression value for each gene to 0 and the high and low values to 1 and -1, respectively. Thus, genes with high absolute expression values when compared with genes with low absolute expression values would not skew the comparisons  
15 when clustering algorithms are applied.

The measurement of the cluster space distance was determined by using the correlation coefficient (1-r) method and clustering was performed using Ward's method (Ward, J.H. (1963) *Journal of American Statistical Association*, 58. 236.)

The clustering was validated by observing whether multiple elements representing the  
20 same genes showing the same direction of expression change (*i.e.*, either up or down) tend to cluster together. To test this standardization and clustering protocol, the expression levels for genes that are represented by more than one element on the 42K gene chip set were analyzed to determine whether the multiple elements for a single gene could be clustered together. For example, tryptase, also known as alpha tryptase or beta (tryptase II) is represented by two  
25 separate elements on the 42K human gene chip. This gene is registered with 2 different element names 41268 (5), M33493\_s\_at (code name, Up-170) and 26389 (3), rc\_AA131322\_s\_at (code name, Up-010).

It was found that the best analysis means for decreasing measurement errors between these two elements is by the Ward method as it gave the most consistent results when  
30 compared to other clustering methods. These analysis methods may be incorporated into software or computer readable storage media for storing a computer programmer software.

***Example 5 : Selection of 60 Marker Genes***

A panel of 60 representative marker genes (listed in Table 5) out of 400 marker genes listed in Tables 3 and 4 can be used in the assays and methods of the invention. The 60 marker genes were selected based on following criteria: (1) expression level is changed  
5 greatly in BPH patient samples compared with normal samples; (2) variation of expression levels within BPH samples and within normal samples is small; and (3) expression levels resembling BPH with symptoms are detected in cell line BRF-55T.

***Example 6: Gene Expression Analysis of Select Genes***

The expression levels of three genes from Tables 1-5 (the genes encoding cellular  
10 retinol binding protein, S100 calcium binding protein and PSMA) were assayed in various tissues and prostate samples by PCR as described in Example 7 (see Figures 1-6). Each sample was assayed for the level of GAPDH and mRNA corresponding to cellular retinol binding protein, S100 calcium binding protein or PSMA. As seen in Figures 1-6, these three  
15 genes are differentially regulated or expressed in BPH tissue from patients with or without symptoms and from BPH tissue from patients with prostate cancer (compared to normal prostate tissue). All three genes are therefore useful markers in the assays of the invention, such as the assays to measure the effect of an agent on BPH or the assays to detect or  
diagnose the occurrence or progression of BPH.

***Example 7: Drug Screening Assays***

20 The expression profiles for normal controls and disease samples described above can be used to identify compound hits from a compound library. A hit may be, but is not necessarily, defined as one of three kinds of results:

1) The expression of an individual gene is changed in the direction of normal (*i.e.*, if  
up in disease, then down=hit, if down in disease, then up=hit). The stronger the modulation of  
25 an individual gene to a normal phenotype, the stronger the hit status for the compound against that gene.

2) The expression of genes that subcluster together is evaluated for an overall pattern  
of modulation to a normal expression profile. The more genes in a subcluster that are  
modulated to a normal phenotype, the stronger the hit status for the compound against that  
30 subcluster. A subcluster may represent common or interacting cellular pathways.

3) The overall expression profile of all of the genes being screened is evaluated for modulation to normal. The more genes that are modulated to a normal phenotype, the stronger the hit status for the compound against the entire gene set.

As described above, if a compound modulates the gene expression pattern of the screening system cells more towards any disease phenotype, then it can be used as a molecular probe to find binding proteins and/or define disease-associated cellular pathways.

As an example, candidate agents and compounds are screened for their ability to modulate the expression levels of cellular retinol binding protein, S100 calcium binding protein and PSMA by exposing a prostate cell line or cell line from BPH tissue to the agent and assaying the expression levels of these genes by real time PCR. Real time PCR detection is accomplished by the use of the ABI PRISM 7700 Sequence Detection System. The 7700 measures the fluorescence intensity of the sample each cycle and is able to detect the presence of specific amplicons within the PCR reaction. Each sample is assayed for the level of GAPDH and mRNA corresponding to cellular retinol binding protein, S100 calcium binding protein and PSMA. GAPDH detection is performed using Perkin Elmer part#402869 according to the manufacturer's directions. Primers were designed for the three genes by using Primer Express, a program developed by PE to efficiently find primers and probes for specific sequences ((1) N91971 - FAM PROBE Forward: 5'- CAT ggC TTT gTT TTA AgA AAA ggA A -3'; Reverse: 5'- AgC CAC CCC CAg gCA T -3'; Probe: 5'-FAM - AgT gAC AAA gCC AAg AgA CAg ACT CTg CTA ACA - TAMRA-3'; (2) X65614 - SYBR; Forward: 5'- AAA gAC AAg gAT gCC gTg gAT -3'; Reverse 5'-AgC CAC gAA CAC gAT gAA CTC-3'; (3) M99487-SYB; Forward 5'-Tgg CTC AgC ACC ACC Aga T-3'; Reverse: 5'-TTC Cag TAA AgC Cag gTC CAA-3')

These primers are used in conjunction with SYBR green (Molecular Probes), a nonspecific double stranded DNA dye, to measure the expression level mRNA corresponding to the genes, which is normalized to the GAPDH level in each sample.

Normalized expression levels from cells exposed to the agent are then compared to the normalized expression levels in control cells. Agents that modulate the expression of one or more the genes may be further tested as drug candidates in appropriate BPH *in vitro* or *in vivo* models.

#### ***Example 8 Diagnostic assays***

The expression profiles of one or more of the individual genes of Tables 1-5 are used as molecular or diagnostic markers to evaluate the disease status of a patient sample. In one embodiment, a patient prostate tissue sample is processed as described herein to produce total cellular or mRNA. The RNA is hybridized to a chip containing probes that specifically  
5 hybridize to one or more, or two or more of the genes in Tables 1-5. The overall expression profile generated, or the expression levels of individual genes are then compared to the profiles as described in Tables 1-5 to determine the disease or hyperplastic state of the patient sample.

10 Although the present invention has been described in detail with reference to examples above, it is understood that various modifications can be made without departing from the spirit of the invention. Accordingly, the invention is limited only by the following claims. All cited patents, applications, GenBank Accession numbers and publications referred to in this application are herein incorporated by reference in their entirety.

Normal1-Normal2 vs BPH-With Symptoms Table  
1654533.1

	Affy element	Genbank ID	Genbank Name	Fold-change N1-N2 vs With	p-value N1-N2 vs With
Up-regulated	RC_AA410383_at	AA410383	B-cell-homing chemokine (ligand for	22.5	0.025197485
	RC_AA463726_s_at	AA463726	Burkitt's lymphoma receptor-1)4q21	14.9	0.018598344
			JM27 proteinXp11.23		
			Homo sapiens mRNA; cDNA		
	RC_AA057195_at	AA057195	DKFZp586M121 (from clone	14.0	0.029325045
			DKFZp586M121)		
	V01512_rna1_at	V01512_rna1	v-fos FBJ murine osteosarcoma viral	13.1	0.001027561
	RC_AA427622_s_at	AA427622	oncogene homolog14q24.3	11.6	0.00074954
			collagen, type XIII, alpha 110q22		
			v-fos FBJ murine osteosarcoma viral		
	RC_N23730_s_at	N23730	oncogene homolog14q24.3	11.4	0.000631487
	RC_AA465491_at	AA465491	Mad4 homolog4p16.3	11.4	0.031024189
	RC_AA620825_at	AA620825	ESTs	11.3	0.010915901
	RC_R93908_at	R93908	ESTs	11.3	0.019994337
	RC_AA461300_at	AA461300	ESTs	11.0	0.007061759
	N40141_at	N40141	JM27 proteinXp11.23	10.9	0.013756347
	RC_R25410_at	R25410	ESTs	7.7	0.01851753
			FBJ murine osteosarcoma viral		
	L49169_at	L49169	oncogene homolog B19q13.3	7.4	0.041523744
	RC_AA279760_at	AA279760	ESTs	7.0	0.024411468
	RC_T90889_at	T90889	ESTs	6.5	0.015666863
			insulin-like growth factor binding		
	U62015_at	U62015	protein 101p22-p31	6.0	0.002843661
			highly expressed in cancer, rich in		
	RC_AA188981_at	AA188981	leucine heptad repeats	5.9	0.002280479
	D83018_at	D83018	nel (chicken)-like 212q13.11-q13.12	5.6	0.000570952
			immunoglobulin gamma 3 (Gm		
	RC_H64493_f_at	H64493	marker)14q32.33	5.6	0.01109802
	X52541_at	X52541	early growth response 15q31.1	5.2	0.002428259
			major histocompatibility complex,		
	M57466_s_at	M57466	class II, DP beta 16p21.3	5.1	0.002137399
	J03507_at	J03507	complement component 75p13	4.9	1.36616E-05
	RC_N30198_at	N30198	ESTs	4.8	0.003366461
	RC_T78398_at	T78398	EST	4.8	0.033293747
	RC_H17550_at	H17550	ESTs	4.7	0.047828622
			immunoglobulin lambda gene		
	RC_T67053_f_at	T67053	cluster22q11.1-q11.2	4.5	0.045107075
	RC_AA598982_s_at	AA598982	trophininXp11.22-p11.21	4.3	0.000902336
	RC_AA256268_at	AA256268	ESTs	4.2	0.001506239
			insulin-like growth factor 2		
	HG3543-HT3739_at	M29645	(somatomedin A)11p15.5	4.1	0.017253126
	RC_N91971_f_at	N91971	retinol-binding protein 1, cellular3q23	4.1	0.02528773
	RC_AA479286_at	AA479286	ESTs	4.0	0.028009544
	M62831_at	M62831	immediate early protein19	4.0	0.000484086
			ESTs, Weakly similar to unknown		
	RC_F02992_at	F02992	[M.musculus]	3.9	0.031845412
	RC_H86112_f_at	H86112	KIAA0471 gene product1q24-q25	3.8	0.004155259
	RC_AA436616_at	AA436616	ESTs	3.8	0.017156387
	RC_T62857_at	T62857	ESTs	3.7	0.000301735
	RC_AA281345_f_at	AA281345	immediate early protein19	3.6	0.001679723
	U21128_at	U21128	lumican12q21.3-q22	3.6	2.19529E-05
	U30521_at	U30521	P311 protein	3.6	0.001150397
	RC_N58172_at	N58172	ESTs	3.5	0.043092144
	RC_T03229_f_at	T03229	EST	3.5	0.031101935
			collagen, type III, alpha 1 (Ehlers-		
			Danlos syndrome type IV, autosomal		
	X06700_s_at	X06700	dominant)2q31	3.5	0.008472599
			Homo sapiens clone 23555 mRNA		
	RC_Z39904_at	Z39904	sequence	3.4	0.002949046
	RC_T23622_at	T23622	ESTs	3.4	0.002174281
			immunoglobulin gamma 3 (Gm		
	J00231_f_at	J00231	marker)14q32.33	3.4	0.009322568
	RC_AA028092_s_at	AA028092	transcription factor 216pter-qter	3.4	3.13963E-06
	RC_AA252528_at	AA252528	ESTs	3.4	0.000225707
			procollagen C-endopeptidase		
	L33799_at	L33799	enhancer7q22	3.3	0.018469201

Normal1-Normal2 vs BPH-With Symptoms Table			30		
1654533.1	Affy element	Genbank ID	TABLE 1 Genbank Name	Fold-change N1-N2 vs With	p-value N1-N2 vs With
	RC_F09748_s_at	F09748	Homo sapiens mRNA; cDNA DKFZp586K1220 (from clone DKFZp586K1220)	3.2	0.02728166
	RC_T64223_s_at	T64223	carboxypeptidase A3 (mast cell)3q21 q25	3.2	0.027915742
	RC_AA402903_f_at	AA402903	immunoglobulin gamma 3 (Gm marker)14q32.33	3.2	0.044721116
	RC_F13763_at	F13763	ESTs	3.1	0.000503701
	RC_AA488432_at	AA488432	phosphoserine phosphatase7p21-small inducible cytokine A5 (RANTES)17q11.2-q12	3.1	0.020997503
	RC_AA486072_j_at	AA486072	EST	3.1	0.025877597
	RC_N22006_s_at	N22006	EST	3.1	0.00148561
	RC_AA257093_r_at	AA257093	T-cell receptor, beta cluster7q35	3.1	1.71945E-07
	RC_AA609943_at	AA609943	ESTs	3.0	0.029360518
	RC_T23490_s_at	T23490	ESTs	3.0	0.008741411
	D13628_at	D13628	angiopoietin 18q22.3-q23	2.9	0.006228419
	M73720_at	M73720	carboxypeptidase A3 (mast cell)3q21 q25	2.9	0.006585391
	Z74616_s_at	Z74616	collagen, type I, alpha 27q22.1	2.8	0.008750622
	AA082546_at	AA082546	ESTs	2.8	0.019771126
	RC_AA284920_at	AA284920	ESTs	2.7	0.019738239
	RC_AA599365_at	AA599365	decorin12q23	2.7	0.001295936
	X57025_at	X57025	insulin-like growth factor 1 (somatomedin C)12q22-q23	2.7	0.022341194
	X51345_at	X51345	jun B proto-oncogene19p13.2	2.7	0.036487159
	RC_N67876_s_at	N67876	insulin-like growth factor 1 (somatomedin C)12q22-q23	2.7	0.035216134
	RC_AA609504_at	AA609504	KIAA0405 gene product	2.7	0.020881055
			ESTs, Moderately similar to !!!! ALU SUBFAMILY SB2 WARNING ENTRY !!!! [H.sapiens]		
	RC_N69207_at	N69207	immunoglobulin gamma 3 (Gm marker)14q32.33	2.6	0.041315387
	M87789_s_at	M87789	nuclear receptor subfamily 2, group F, member 15q14	2.6	0.038916248
	HG3510-HT3704_at	X12795	ESTs, Weakly similar to pancortin-1 [M.musculus]	2.6	0.016151338
	RC_T64211_at	T64211	butyrophilin, subfamily 3, member A16p23	2.6	0.006233291
	U90552_s_at	U90552	immunoglobulin lambda-like	2.6	0.004564282
	M34516_r_at	M34516	polypeptide 322q11.2	2.6	0.049767038
	RC_T23468_at	T23468	ESTs	2.5	0.00250737
			ESTs, Weakly similar to !!!! ALU SUBFAMILY SQ WARNING ENTRY		
	RC_AA173223_at	AA173223	!!!! [H.sapiens]	2.5	0.007080285
	RC_T49061_at	T49061	ESTs	2.5	0.039642391
	RC_AA234095_at	AA234095	ESTs	2.5	0.003152859
	RC_F01920_s_at	F01920	pre-B-cell leukemia transcription factor 39q33-q34	2.5	0.002088945
	RC_N91461_at	N91461	ESTs	2.4	0.01015467
	RC_N67575_s_at	N67575	osteoglycin (osteoinductive factor)	2.4	0.004044061
	RC_AA151210_at	AA151210	ESTs	2.4	0.011476541
			Homo sapiens mRNA; cDNA DKFZp564I1922 (from clone DKFZp564I1922)		
	AA156897_s_at	AA156897	transcription factor 216pter-qter	2.4	0.033974981
	W73859_at	W73859	EST	2.4	0.024640626
	RC_H68097_at	H68097	EST	2.4	0.04870874
	RC_AA436618_at	AA436618	ESTs	2.4	0.02483165
	M33493_s_at	M33493	tryptase, beta (tryptase II)16p13.3	2.4	0.02689938
	AB002340_at	AB002340	KIAA0342 gene product	2.3	0.000748796
	RC_AA446661_at	AA446661	ESTs	2.3	0.011980248
	RC_AA084138_at	AA084138	ESTs	2.3	1.16025E-05
			ESTs, Weakly similar to putative p150 [H.sapiens]		
	RC_N59866_at	N59866	ESTs	2.3	0.002042263
	RC_R42424_at	R42424	ESTs	2.3	0.003173074
	RC_N39415_at	N39415	osteoglycin (osteoinductive factor)	2.3	0.001310764

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Normal1-Normal2 vs BPH-With Symptoms Table

1654533.1	Genbank ID	Genbank Name	Fold-change N1-N2 vs With	p-value N1-N2 vs With
Affy element				
J03464_s_at	J03464	collagen, type I, alpha 27q22.1	2.3	0.006791534
RC_AA205376_at	AA205376	KIAA0471 gene product1q24-q25	2.3	0.023123837
RC_H95960_at	H95960	secreted protein, acidic, cysteine-rich (osteonectin)5q31.3-q32	2.3	0.008509182
D28137_at	D28137	bone marrow stromal cell antigen 219p13.2	2.3	0.031127266
RC_N79778_at	N79778	extracellular matrix protein 2, female organ and adipocyte specific9q22.3	2.3	0.045073744
RC_N98485_s_at	N98485	forkhead (Drosophila)-like 66p25.3	2.3	0.033372862
M98539_at	M98539	prostaglandin D2 synthase (21kD, brain)9q34.2-q34.3	2.2	0.005442674
RC_AA205724_at	AA205724	ESTs	2.2	0.006183612
U85625_at	U85625	Homo sapiens ribonuclease 6 precursor, mRNA, complete cds.	2.2	0.001245066
RC_R37588_s_at	R37588	RAB2, member RAS oncogene family-like6p21.3	2.2	0.00219386
RC_AA046426_at	AA046426	Cdc42 effector protein 3	2.2	0.005788723
RC_AA256294_at	AA256294	ESTs	2.2	0.002425605
RC_AA599120_at	AA599120	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily e, member 1	2.2	0.042979241
RC_W60186_at	W60186	ESTs	2.2	0.028494835
RC_AA599216_at	AA599216	collapsin response mediator protein 14p16.1-p15	2.2	0.040523744
RC_AA450324_at	AA450324	ESTs	2.1	0.009094567
M31994_at	M31994	Homo sapiens aldehyde dehydrogenase (ALDH1) gene	2.1	0.001561218
RC_AA402930_at	AA402930	ESTs	2.1	0.000114627
M91029_cds2_at	M91029_cds2	Human AMP deaminase isoform L (AMPD2) mRNA, exons 6-18, partial cds	2.1	0.02494373
RC_AA450114_at	AA450114	ESTs, Weakly similar to 17beta-hydroxysteroid dehydrogenase [H.sapiens]	2.1	4.87556E-06
D62584_at	D62584	osteoglycin (osteoinductive factor)	2.1	0.000157116
RC_AA621634_at	AA621634	ESTs	2.1	0.02297009
RC_AA312946_s_at	AA312946	ESTs	2.1	3.51075E-05
X07438_s_at	X07438	Human DNA for cellular retinol binding protein (CRBP)	2.1	0.039015947
RC_N53447_at	N53447	integral membrane protein 2CXq21.1 21.2	2.1	0.009032297
RC_AA281591_at	AA281591	Homo sapiens mRNA; cDNA DKFZp586B211 (from clone DKFZp586B211)	2.0	0.016660714
RC_R71395_at	R71395	ESTs, Moderately similar to alternatively spliced product using exon 13A [H.sapiens]	2.0	0.046231847
RC_T53590_s_at	T53590	cytochrome P450, subfamily XIA (cholesterol side chain cleavage)15q23-q24	2.0	0.00282074
RC_AA293489_at	AA293489	KIAA0638 protein	2.0	0.006966532
RC_AA447707_s_at	AA447707	KIAA1055 protein	2.0	0.001248537
RC_AA235618_f_at	AA235618	ESTs	2.0	0.012481746
RC_N68350_at	N68350	ESTs	2.0	0.035156598
RC_H81379_s_at	H81379	ESTs, Moderately similar to KIAA0438 [H.sapiens]	2.0	0.01148429
RC_D51060_s_at	D51060	Jun activation domain binding protein1p32-p31	2.0	0.016668951
U72649_at	U72649	B-cell translocation gene 2 (pheochromocytoma cell-3)1q32	2.0	0.020660388
RC_AA287389_at	AA287389	ESTs	2.0	0.002741873
RC_AA621367_at	AA621367	ESTs	2.0	0.004871903
J03040_at	J03040	secreted protein, acidic, cysteine-rich (osteonectin)5q31.3-q32	2.0	0.006303994

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Normal1-Normal2 vs BPH-With Symptoms Table  
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Affy element	Genbank ID	Genbank Name	Fold-change N1-N2 vs With	p-value N1-N2 vs With
RC_AA291676_s_at	AA291676	non-metastatic cells 5, protein expressed in (nucleoside-diphosphate kinase)5q23-q31	2.0	0.027480479
RC_N63536_at	N63536	ESTs	2.0	0.000634305
RC_AA411952_at	AA411952	UDP-Gal:betaGlcNAc beta 1,3-galactosyltransferase, polypeptide 33q25	2.0	0.011858934
RC_AA252802_s_at	AA252802	Human mRNA for TI-227H	2.0	0.041027635
RC_AA382275_at	AA382275	ESTs	2.0	0.00087437
AA093923_at	AA093923	tissue inhibitor of metalloproteinase 217q25	2.0	0.046200886
M11313_s_at	M11313	alpha-2-macroglobulin12p13.3-p12.3	2.0	0.013660595
RC_AA398280_at	AA398280	ESTs	2.0	0.044320644
RC_N51529_at	N51529	ESTs	2.0	0.006276979
H49440_at	H49440	nudix (nucleoside diphosphate linked moiety X)-type motif 36p21.2	2.0	0.013879331
RC_T33263_s_at	T33263	KIAA0320 protein	2.0	0.009994615
RC_T89160_r_at	T89160	ESTs	2.0	0.005289266
RC_W56792_at	W56792	ESTs, Weakly similar to serine/threonine protein kinase TAO1 [R.norvegicus]	2.0	0.026130523
RC_R60056_at	R60056	ESTs, Moderately similar to alternatively spliced product using exon 13A [H.sapiens]	2.0	0.001585076
Down-regulated RC_AA398908_at	AA398908	Human Chromosome 16 BAC clone CIT987SK-A-61E3	-21.7	0.007918174
RC_AA460914_at	AA460914	ESTs	-15.8	0.013659536
RC_T40895_at	T40895	ESTs	-12.6	0.002430219
RC_R71792_s_at	R71792	ESTs, Moderately similar to FAT-SPECIFIC PROTEIN FSP27 [M.musculus]	-9.8	0.01438632
RC_N80129_i_at	N80129	metallothionein 1L16q13	-8.7	0.002816872
X66141_at	X66141	myosin, light polypeptide 2, regulatory, cardiac, slow12q23-q24.3	-8.0	0.03928942
AA234634_f_at	AA234634	CCAAT/enhancer binding protein (C/EBP), delta8p11.2-p11.1	-7.4	0.000589696
U78294_at	U78294	arachidonate 15-lipoxygenase, second type	-6.8	0.017271608
RC_AA457566_at	AA457566	ESTs	-6.6	0.029644622
X93036_at	X93036	phospholemman-like, expressed in breast tumors, 8kD	-6.2	0.011323909
X57129_at	X57129	H1 histone family, member 26p21.3	-6.1	0.004161922
HG1067-HT1067_r_at	M22406	Human intestinal mucin mRNA, partial cds, clone SMUC 42	-5.8	0.007202185
X65614_at	X65614	S100 calcium-binding protein P4p16	-5.8	0.006892572
RC_AA609006_at	AA609006	ESTs	-5.7	0.015701354
J03910_rna1_at	J03910_rna1	metallothionein 1G16q13	-5.7	0.003506953
RC_H94471_at	H94471	occludin5q13.1	-5.6	0.025014274
AB000584_at	AB000584	prostate differentiation factor	-5.4	0.003235425
RC_W88568_at	W88568	glycogenin 2Xp22.3	-5.1	0.048573115
V00594_at	V00594	metallothionein 2A16q13	-5.0	0.000721258
RC_T73433_s_at	T73433	angiotensinogen1q41-qter	-4.9	0.012700144
RC_N94303_at	N94303	ESTs	-4.5	4.88059E-05
RC_AA419011_at	AA419011	Homo sapiens mRNA; cDNA DKFZp586D0823 (from clone DKFZp586D0823)	-4.1	0.013801595
RC_N32748_at	N32748	ESTs	-4.1	0.018749207
RC_AA053424_at	AA053424	ESTs, Weakly similar to mucin Muc3 [R.norvegicus]	-4.0	0.001235197
RC_AA599331_at	AA599331	ESTs	-4.0	0.005480655
M99487_at	M99487	folate hydrolase (prostate-specific	-3.9	0.013268152
RC_F02245_at	F02245	membrane antigen) 111p11.2	-3.8	0.002950391
X76717_at	X76717	monoamine oxidase AXp11.4-p11.3	-3.7	0.000868707
X64177_f_at	X64177	metallothionein 1L16q13	-3.7	0.002089771
		metallothionein 1H16q13	-3.7	0.002089771

Normal1-Normal2 vs BPH-With Symptoms Table  
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Affy element Genbank ID

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TABLE 1  
Genbank Name

Fold-change p-value  
N1-N2 vs With N1-N2 vs With

RC_AA599522_r_at	AA599522	squamous cell carcinoma antigen recognised by T cells	-3.6	0.012643918
L77701_at	L77701	human homolog of yeast mitochondrial copper recruitment gene	-3.6	0.003341007
RC_D11824_at	D11824	ESTs, Moderately similar to weak similarity to Arabidopsis thaliana	-3.6	0.000803294
RC_AA410311_at	AA410311	ubiquitin-like protein 8 [C.elegans]	-3.5	0.001234064
RC_AA457235_at	AA457235	ESTs	-3.5	0.012177965
RC_N93798_at	N93798	protein tyrosine phosphatase type IVA, member 3	-3.5	0.007340453
RC_AA416762_s_at	AA416762	nuclear receptor subfamily 1, group H, member 219q13.3-19q13.3	-3.5	0.010404304
RC_F03969_at	F03969	ESTs, Weakly similar to tumorous imaginal discs protein Tid56 homolog [H.sapiens]	-3.5	0.011826812
RC_AA045487_at	AA045487	ESTs	-3.4	0.025187615
RC_Z38744_at	Z38744	putative gene product13	-3.4	2.30674E-05
RC_N92502_s_at	N92502	ESTs, Moderately similar to HERV-E integrase [H.sapiens]	-3.4	0.02301359
RC_R91484_at	R91484	ESTs	-3.4	8.2306E-05
RC_AA165313_at	AA165313	ESTs	-3.3	0.028364404
RC_AA182030_at	AA182030	ESTs	-3.3	0.019770486
RC_T94447_s_at	T94447	ESTs, Moderately similar to (define not available 4335935) [M.musculus]	-3.3	0.001427294
RC_W20486_f_at	W20486	ESTs	-3.3	0.002892697
RC_R16983_at	R16983	ESTs	-3.2	0.000912559
RC_AA504805_s_at	AA504805	interferon stimulated gene (20kD)15q26	-3.2	0.003905701
RC_T90190_s_at	T90190	H1 histone family, member 26p21.3	-3.2	0.020618793
RC_AA135870_at	AA135870	ESTs	-3.1	0.04609197
RC_H99035_at	H99035	ESTs	-3.1	0.000191451
RC_R28370_at	R28370	ESTs	-3.1	0.024606319
RC_T40995_f_at	T40995	alcohol dehydrogenase 3 (class I), gamma polypeptide4q21-q23	-3.1	0.024064044
MIP1-B_at	MIP1-B	karyopherin (importin) beta 2	-3.1	0.005882353
RC_AA447522_at	AA447522	ESTs, Highly similar to differentially expressed in Fanconi anemia [H.sapiens]	-3.1	0.003518059
RC_AA461453_at	AA461453	ESTs, Moderately similar to Cab45a [M.musculus]	-3.0	0.021949087
AA429539_f_at	AA429539	ESTs	-3.0	0.017623102
RC_AA476944_at	AA476944	ESTs	-3.0	0.019974254
RC_N80129_f_at	N80129	metallothionein 1L16q13	-3.0	0.000219038
RC_N26904_at	N26904	ESTs, Weakly similar to FK506/rapamycin-binding protein	-2.9	0.006305062
RC_AA505136_at	AA505136	FKBP13 precursor [H.sapiens]	-2.9	0.005400284
AA455001_s_at	AA455001	ESTs	-2.9	2.1534E-05
RC_W70131_at	W70131	ESTs	-2.9	0.005764635
RC_AA043349_at	AA043349	ESTs	-2.9	0.016983419
U02020_at	U02020	pre-B-cell colony-enhancing factor	-2.9	0.003324497
U52969_at	U52969	Purkinje cell protein 421q22.2-q22.3	-2.8	0.00078638
RC_H22453_at	H22453	ESTs	-2.8	0.000410695
RC_N22620_at	N22620	ESTs	-2.8	0.005507089
RC_N64683_at	N64683	ESTs	-2.8	0.00378977
RC_N24761_at	N24761	ESTs	-2.8	0.004837185
RC_AA464728_s_at	AA464728	ESTs	-2.8	0.004669897
RC_H83380_at	H83380	ESTs	-2.7	0.016543793
M30894_at	M30894	T-cell receptor, gamma cluster7p15-p14	-2.7	0.034153167
RC_H81070_f_at	H81070	Human metallothionein (MT)I-F gene	-2.7	0.022654931
J00073_at	J00073	actin, alpha, cardiac muscle15q11-qter	-2.7	0.029724167

Normal1-Normal2 vs BPH-With Symptoms Table  
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Affy element	Genbank ID
RC_H05084_at	H05084
AA045870_at	AA045870
RC_T68873_f_at	T68873
RC_N72253_at	N72253
RC_AA447977_s_at	AA447977
RC_H18947_at	H18947
RC_H77597_f_at	H77597
RC_H94475_s_at	H94475
RC_AA025370_at	AA025370
RC_AA443114_at	AA443114
RC_F09684_at	F09684
RC_AA031360_s_at	AA031360
RC_AA416685_at	AA416685
D29805_at	D29805
RC_H58873_s_at	H58873
M10942_at	M10942
RC_T03593_at	T03593
RC_N95495_at	N95495
RC_AA017063_r_at	AA017063
RC_R00144_at	R00144
RC_AA599522_f_at	AA599522
RC_AA219552_s_at	AA219552
RC_AA447537_at	AA447537
RC_AA070752_s_at	AA070752
RC_R02003_r_at	R02003
L13698_at	L13698
RC_AA432292_at	AA432292
RC_H99648_s_at	H99648
RC_AA131919_at	AA131919
RC_AA621695_at	AA621695
RC_AA598695_at	AA598695
RC_AA430388_at	AA430388
M24069_at	M24069
RC_AA434108_at	AA434108
RC_AA405488_at	AA405488
RC_AA419546_at	AA419546
RC_W38197_at	W38197
RC_R38709_s_at	R38709
RC_AA121142_at	AA121142

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TABLE 1

Genbank Name	Fold-change N1-N2 vs With	p-value N1-N2 vs With
ESTs, Weakly similar to ORF YDL055c [S.cerevisiae]	-2.7	0.016965435
Homo sapiens mRNA; cDNA DKFZp564A072 (from clone DKFZp564A072)	-2.7	0.005480167
metallothionein 1L16q13	-2.7	0.001140431
ESTs	-2.7	0.001832591
Homo sapiens mRNA; cDNA DKFZp564A072 (from clone DKFZp564A072)	-2.7	0.001255304
ESTs	-2.7	0.00193501
metallothionein 1H16q13	-2.7	0.001560766
alpha-2-plasmin inhibitor17pter-p12	-2.6	0.01435663
KIAA0872 protein	-2.6	0.013924142
ESTs, Moderately similar to PIM-1 PROTO-ONCOGENE		
SERINE/THREONINE-PROTEIN KINASE [M.musculus]	-2.6	0.000703574
ESTs	-2.6	0.000107291
ESTs	-2.6	0.047293081
UNC13 (C. elegans)-like9p11-p12	-2.6	0.023296279
UDP-Gal:betaGlcNAc beta 1,4-galactosyltransferase, polypeptide 19p13	-2.6	2.3562E-05
solute carrier family 2 (facilitated glucose transporter), member 11p35-p31.3	-2.5	0.000710917
metallothionein 1E (functional)16q13	-2.5	0.017370635
ESTs	-2.5	0.006239127
small inducible cytokine A5 (RANTES)17q11.2-q12	-2.5	0.002392984
ESTs, Highly similar to Miz-1 protein [H.sapiens]	-2.5	0.048093776
ESTs	-2.5	0.018222161
squamous cell carcinoma antigen recognised by T cells	-2.5	0.03100833
ESTs	-2.5	0.043156485
ESTs, Moderately similar to (define not available 5360237) [M.musculus]	-2.5	0.031129269
insulin receptor substrate 12q36	-2.5	0.002895462
ESTs, Weakly similar to cappuccino [D.melanogaster]	-2.4	0.002315115
growth arrest-specific 19q21.3-q22.1	-2.4	0.013393145
ESTs, Moderately similar to B cell growth factor [H.sapiens]	-2.4	0.000956642
DNA segment, single copy probe LNS-CAI/LNS-CAII (deleted in polyposis5q22-q23	-2.4	0.009066307
putative type II membrane protein	-2.4	0.000187872
ESTs	-2.4	0.008761556
ESTs, Weakly similar to !!!! ALU SUBFAMILY SX WARNING ENTRY		
!!!! [H.sapiens]	-2.4	0.000549977
ESTs, Moderately similar to !!!! ALU SUBFAMILY SQ WARNING ENTRY		
!!!! [H.sapiens]	-2.4	0.000135176
cold shock domain protein A12p13.1	-2.4	0.015890231
Homo sapiens heat shock protein hsp40-3 mRNA, complete cds	-2.4	0.013182623
ESTs	-2.3	0.015044159
ESTs	-2.3	0.030432017
EST	-2.3	0.013006462
superoxide dismutase 2, mitochondrial6q25.3	-2.3	0.03567491
ESTs, Moderately similar to copper transport protein HAH1 [H.sapiens]	-2.3	0.043639016

Normal1-Normal2 vs BPH-With Symptoms Table  
1654533.1

Affy element	Genbank ID
RC_N26801_at	N26801
RC_N75960_at	N75960
RC_R36969_at	R36969
AA046840_at	AA046840
RC_R46074_at	R46074
X06956_at	X06956
RC_H84761_s_at	H84761
RC_W52065_f_at	W52065
RC_AA279757_at	AA279757
RC_H16676_s_at	H16676
RC_AA255480_at	AA255480
RC_R96924_s_at	R96924
RC_AA342337_at	AA342337
RC_AA004699_at	AA004699
RC_AA401965_at	AA401965
RC_F02470_at	F02470
X76180_at	X76180
RC_R49138_s_at	R49138
RC_D80237_s_at	D80237
RC_AA402224_at	AA402224
RC_AA281599_at	AA281599
RC_N78630_at	N78630
X85785_rna1_at	X85785_rna1
RC_AA412063_at	AA412063
RC_AA022886_at	AA022886
RC_N24899_at	N24899
RC_AA101767_at	AA101767
RC_AA045503_at	AA045503
RC_F10078_at	F10078
RC_H02308_at	H02308
RC_AA284153_at	AA284153
RC_AA453433_at	AA453433
RC_AA403159_at	AA403159
RC_T17428_s_at	T17428
RC_W92449_at	W92449
RC_AA609312_at	AA609312
D28589_at	D28589
RC_AA232508_at	AA232508
RC_AA280929_s_at	AA280929
W63793_at	W63793
RC_R36881_s_at	R36881
RC_AA278767_s_at	AA278767

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TABLE 1

Genbank Name	Fold-change N1-N2 vs With	p-value N1-N2 vs With
ESTs	-2.3	0.000580867
ESTs	-2.3	0.01244791
ESTs	-2.3	0.019129486
CCAAT/enhancer binding protein (C/EBP), delta8p11.2-p11.1 transforming, acidic coiled-coil containing protein 210q26	-2.3	0.002504544
tubulin, alpha 1 (testis specific)2q	-2.3	0.003462273
glutathione peroxidase 13p21.3	-2.3	0.015437809
KIAA0539 gene product	-2.2	0.000365528
ESTs, Weakly similar to (define not available 4481810) [D.melanogaster]	-2.2	0.016497348
ESTs, Weakly similar to (define not available 5107634) [R.norvegicus]	-2.2	0.003272622
ESTs	-2.2	8.86866E-05
ESTs	-2.2	0.009359024
ESTs, Moderately similar to !!!! ALU SUBFAMILY SQ WARNING ENTRY	-2.2	0.000201685
!!!! [H.sapiens]	-2.2	0.024999347
putative translation initiation factor tumor suppressor deleted in oral cancer-related 111q13	-2.2	0.022298405
Homo sapiens clone 24796 mRNA sequence	-2.2	0.006294885
sodium channel, nonvoltage-gated 1 alpha12p13	-2.2	0.022313149
coatamer protein complex, subunit epsilon	-2.2	0.023078001
actin related protein 2/3 complex, subunit 4 (20 kD)	-2.2	0.020401578
growth arrest and DNA-damage-inducible, gamma9q22.1-q22.2	-2.2	0.022022634
Homo sapiens mRNA for histone H2B, clone pjG4-5-14	-2.2	0.014983528
KIAA0870 protein	-2.2	0.029567009
Duffy blood group1q21-q22	-2.2	0.006668895
ESTs	-2.2	0.018706507
ESTs, Weakly similar to phosphatidylinositol transfer protein [H.sapiens]	-2.2	0.000686563
ESTs	-2.2	0.000777067
ESTs	-2.2	0.030610964
ESTs, Weakly similar to Homo sapiens p20 protein [H.sapiens]	-2.2	0.009040467
ESTs	-2.2	0.021950966
ESTs	-2.1	0.040699115
ESTs	-2.1	0.036730715
ESTs	-2.1	0.021270233
HLA-B associated transcript-16p21.3	-2.1	0.013366375
Homo sapiens Ste-20 related kinase SPAK mRNA, complete cds	-2.1	0.025212073
Homo sapiens clone 23836 mRNA sequence	-2.1	0.044754602
ESTs, Highly similar to (define not available 4587714) [H.sapiens]	-2.1	0.019386585
ESTs	-2.1	0.003204911
Human mRNA (KIAA00167), partial sequence	-2.1	0.000408478
ESTs, Highly similar to (define not available 4929647) [H.sapiens]	-2.1	0.004626663
ESTs	-2.1	0.028189798
S-adenosylmethionine decarboxylase 16q21-q22	-2.1	0.032076011
Homo sapiens DNA from chromosome 19-cosmid R30879	-2.1	0.007343473
containing USF2, genomic sequence	-2.1	0.001983494
ESTs	-2.1	

Normal1-Normal2 vs BPH-With Symptoms Table			36		
1654533.1	Genbank	Genbank	TABLE 1	Fold-change	p-value
Affy element	ID	Name		N1-N2 vs With	N1-N2 vs With
RC_R98442_at	R98442	ESTs		-2.1	0.007227226
X99728_at	X99728	H.sapiens NDUFV3 gene, exon 3.		-2.1	0.001404191
		solute carrier family 11 (proton-coupled divalent metal ion transporters), member 212q13		-2.1	0.006004344
RC_R09379_at	R09379	EST, Moderately similar to (define not available 5052951) [H.sapiens]		-2.1	0.016256526
RC_R99092_at	R99092	cold shock domain protein A12p13.1		-2.1	0.025953179
X95325_s_at	X95325	Human metallothionein (MT)I-F gene		-2.1	0.032089569
RC_T56281_f_at	T56281	ESTs		-2.1	0.000265391
RC_R44397_at	R44397	ESTs		-2.1	0.004317675
RC_H27180_f_at	H27180	ESTs		-2.1	0.025559572
AA165312_at	AA165312	ESTs		-2.1	0.030594523
RC_AA279313_s_at	AA279313	methyl CpG binding protein 2Xq28		-2.1	0.030594523
		Homo sapiens beta-tubulin mRNA, complete cds.		-2.1	0.017120749
HG4322-HT4592_at	AF141349	high-mobility group (nonhistone chromosomal) protein isoforms I and Y6p21		-2.1	0.009976588
RC_H81413_f_at	H81413	ESTs, Highly similar to (define not available 5107163) [H.sapiens]		-2.1	0.000435688
RC_W94333_at	W94333	eukaryotic translation initiation factor 3, subunit 1 (alpha, 35kD)		-2.1	0.025226928
RC_AA455070_at	AA455070	parathymosin17q12-q22		-2.1	0.027182202
RC_R11526_f_at	R11526	EST		-2.1	0.001478856
RC_T15409_f_at	T15409	ESTs		-2.1	0.024564209
RC_H05625_f_at	H05625	ESTs		-2.0	0.022844667
RC_AA620461_at	AA620461	ESTs		-2.0	0.025394324
RC_AA449791_f_at	AA449791	EST		-2.0	0.008375153
RC_AA435769_s_at	AA435769	ESTs		-2.0	0.021894439
RC_N55502_at	N55502	ESTs		-2.0	0.021894439
		tumor suppressing subtransferable candidate 311p15.5		-2.0	0.03566128
AF001294_at	AF001294	ESTs, Highly similar to (define not available 4929639) [H.sapiens]		-2.0	0.002289892
RC_Z40898_at	Z40898	ESTs		-2.0	0.00187676
RC_AA436861_at	AA436861	peptidylprolyl isomerase B (cyclophilin B)15		-2.0	0.044239663
M63573_at	M63573	KIAA0252 protein		-2.0	0.041237995
RC_T25732_f_at	T25732	ESTs, Weakly similar to (define not available 4456991) [H.sapiens]		-2.0	0.005735841
RC_R01257_at	R01257	cell division cycle 2717q12-17q23.2		-2.0	0.001412925
RC_H91703_i_at	H91703	ESTs		-2.0	0.040996591
RC_N34817_at	N34817	ESTs, Weakly similar to KIAA0374 [H.sapiens]		-2.0	0.000245565
RC_R60777_at	R60777	ESTs, Weakly similar to MICROTUBULE-ASSOCIATED PROTEIN 1B [M.musculus]		-2.0	0.000541139
		ESTs, Weakly similar to Containing ATP/GTP-binding site motif A(P-loop): Similar to C.elegans protein(P1:CEC47E128); Similar to Mouse alpha-mannosidase(P1:B54407)		-2.0	0.008985897
RC_AA251769_at	AA251769	[H.sapiens]		-2.0	0.024051216
RC_R56602_at	R56602	Ig superfamily proteinXq12-q13.3		-2.0	0.029784087
RC_AA397919_at	AA397919	ESTs		-2.0	0.029784087
		ESTs, Weakly similar to envelope protein [H.sapiens]		-2.0	0.043013942
RC_W37778_f_at	W37778	ESTs		-2.0	0.000824698
AA248555_at	AA248555	ESTs, Weakly similar to SERINE/THREONINE-PROTEIN KINASE NEK3 [H.sapiens]		-2.0	0.002809026
RC_AA463693_at	AA463693	NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 2 (8kD, B8)5q31		-2.0	0.008370263
W76181_at	W76181	ESTs		-2.0	0.015796116
RC_AA171939_at	AA171939	ESTs		-2.0	0.015796116

Normal1-Normal2 vs BPH-With Symptoms Table

1654533.1

Affy element

Genbank  
ID

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TABLE 1

Genbank  
Name

Fold-change

p-value

N1-N2 vs With N1-N2 vs With

U30999\_at

U30999

U30999 Homo sapiens MV3  
melanoma Homo sapiens cDNA  
clone memd

-2.0

0.007070546

RC\_F03254\_f\_at

F03254

synuclein, alpha (non A4 component  
of amyloid precursor)4q21  
ESTs, Weakly similar to !!!! ALU  
SUBFAMILY SC WARNING ENTRY

-2.0

0.011479379

RC\_H26288\_at

H26288

!!!! [H.sapiens]

-2.0

0.000262324

RC\_AA007158\_f\_at

AA007158

ESTs

-2.0

0.001870921

RC\_Z38785\_at

Z38785

Homo sapiens clone 23940 mRNA  
sequence

-2.0

0.013437083

RC\_AA282247\_at

AA282247

ESTs

-2.0

0.000515617

RC\_T23935\_s\_at

T23935

ESTs, Weakly similar to protein-  
tyrosine phosphatase [H.sapiens]

-2.0

0.006493804

RC\_R59593\_at

R59593

ESTs

-2.0

0.014592934

RC\_AA446241\_at

AA446241

tropomyosin 2 (beta)9p13.2-p13.1  
DJ222E13.1a.1 (C-terminal part of  
novel protein DJ222E13.1) (partial  
isoform 1)

-2.0

0.040680667

RC\_Z40556\_at

Z40556

ESTs, Highly similar to (define not  
available 4680655) [H.sapiens]

-2.0

0.019444878

RC\_AA159025\_at

AA159025

estrogen-responsive B box  
protein17p11.2

-2.0

0.01375696

RC\_H03387\_s\_at

H03387

EST

-2.0

0.036382844

RC\_H17333\_at

H17333

EST

-2.0

0.018111182

RC\_AA412722\_s\_at

AA412722

putative cyclin G1 interacting  
protein7

-2.0

0.006838915

U65579\_at

U65579

NADH dehydrogenase (ubiquinone)  
Fe-S protein 8 (23kD) (NADH-  
coenzyme Q reductase)11q13

-2.0

0.013707565

RC\_R88209\_at

R88209

ESTs

-2.0

0.040272012

RC\_Z38266\_at

Z38266

Homo sapiens PAC clone  
DJ0777O23 from 7p14-p15

-2.0

0.009414008

Normal1-Normal2 vs BPH-Cancer Table 1654552.1		Up-regulated Genbank	Table 2	Fold-Change	p-value
Affy element	ID	Name	Genbank	N1-N2 vs Cancer	N1-N2 vs Cancer
L49169_at	L49169	FBJ murine osteosarcoma viral oncogene homolog B19q13.3		18.8	0.03580379
RC_N23730_s_at	N23730	v-fos FBJ murine osteosarcoma viral oncogene homolog14q24.3		16.5	8.98673E-05
V01512_rna1_at	V01512_rna1	v-fos FBJ murine osteosarcoma viral oncogene homolog14q24.3		16.0	0.001216643
RC_T90619_f_at	T90619	actin, gamma 117q25		15.7	0.044124187
U20734_s_at	U20734	jun B proto-oncogene19p13.2		14.3	0.004404553
U62015_at	U62015	insulin-like growth factor binding protein 101p22-p31		13.8	0.000487216
AA374109_at	AA374109	ESTs, Moderately similar to (define not available 5031506) [R.norvegicus]		13.0	0.025911461
RC_T79768_at	T79768	ESTs		12.2	0.018940142
RC_AA410383_at	AA410383	B-cell-homing chemokine (ligand for Burkitt's lymphoma receptor-1)4q21		11.1	0.046025784
X52541_at	X52541	early growth response 15q31.1		9.7	0.003167537
RC_N66802_at	N66802	early growth response 38p23-p21		9.7	0.026764792
RC_AA463726_s_at	AA463726	JM27 proteinXp11.23		9.4	0.003409168
N40141_at	N40141	JM27 proteinXp11.23		8.4	0.021768214
M34996_s_at	M34996	major histocompatibility complex, class II, DQ alpha 16p21.3		7.7	0.015886207
RC_T67053_f_at	T67053	immunoglobulin lambda gene cluster22q11.1-q11.2		7.4	0.000196865
RC_AA404957_at	AA404957	ESTs, Highly similar to MATRIX GLA-PROTEIN PRECURSOR [H.sapiens]		6.6	0.011451385
RC_H64493_f_at	H64493	immunoglobulin gamma 3 (Gm marker)14q32.33		6.5	0.002716347
RC_N47686_s_at	N47686	solute carrier family 14 (urea transporter), member 1 (Kidd blood group)18q11-q12		6.3	0.015568892
RC_W44760_s_at	W44760	frizzled-related protein2qter		6.3	0.016891036
L19871_at	L19871	activating transcription factor 3		6.2	0.007603286
M92934_at	M92934	connective tissue growth factor6q23.1		6.1	0.001046931
M62831_at	M62831	immediate early protein19		5.8	0.00753286
L22524_s_at	L22524	matrix metalloproteinase 7 (matrilysin, uterine)11q21-q22		5.8	0.048289798
J03507_at	J03507	complement component 75p13		5.6	0.00240657
RC_AA236455_r_at	AA236455	ESTs		5.5	0.022653542
RC_AA450127_at	AA450127	growth arrest and DNA-damage-inducible, beta19p13.3		5.5	0.023227588
RC_AA281345_f_at	AA281345	immediate early protein19		5.4	0.003661068
RC_N30198_at	N30198	ESTs		5.3	0.005657756
AFFX-HSAC07/X00351_5_at	X00351	Human mRNA for beta-actin		5.3	0.01547291
D83018_at	D83018	nel (chicken)-like 212q13.11-q13.12		5.1	0.003774757
J04111_at	J04111	Jun activation domain binding protein1p32-p31		5.0	0.000243067
X51345_at	X51345	jun B proto-oncogene19p13.2		5.0	0.017173421
RC_AA398903_at	AA398903	ESTs, Weakly similar to !!!! ALU SUBFAMILY J WARNING ENTRY !!!! [H.sapiens]		4.9	0.014577818
RC_H17550_at	H17550	ESTs		4.7	0.012079391
S81914_at	S81914	immediate early response 36p21.3		4.5	0.006218653
RC_AA250958_f_at	AA250958	EST		4.4	1.88343E-05
RC_AA446651_at	AA446651	ESTs		4.4	0.026022802
HG1872-HT1907_at	M28590	Human (clone pcDG-79) MHC HLA-DG protein 41 mRNA, partial cds.		4.3	0.008830524
RC_AA490667_at	AA490667	ESTs		4.3	0.048863016
RC_N67041_at	N67041	ESTs		4.1	0.009333688
V00563_at	V00563	immunoglobulin mu14q32.33		4.1	0.004301939
X57809_s_at	X57809	immunoglobulin lambda gene cluster22q11.1-q11.2		4.1	0.025371658

Normal1-Normal2 vs BPH-Cancer Table 1654552,1		Up- regulated Genbank	Table 2 Genbank	Fold-Change	p-value
Affy element	ID	Name		N1-N2 vs Cancer	N1-N2 vs Cancer
R69417_at	R69417	ESTs		4.1	0.046373179
J00231_f_at	J00231	immunoglobulin gamma 3 (Gm marker)14q32.33		4.0	0.004766015
RC_AA402903_f_at	AA402903	immunoglobulin gamma 3 (Gm marker)14q32.33		3.9	0.000172905
U21128_at	U21128	lumican12q21.3-q22		3.9	0.000708917
M12529_at	M12529	apolipoprotein E19q13.2		3.7	0.026856247
RC_AA436616_at	AA436616	ESTs		3.7	0.020860083
U72649_at	U72649	B-cell translocation gene 2 (pheochromocytoma cell-3)1q32		3.7	0.002487396
X03689_s_at	X03689	Human mRNA fragment for elongation factor TU (N-terminus)		3.7	0.04821902
AFFX- HSAC07/X00351_5_a t	X00351	Human mRNA for beta-actin		3.6	0.029717275
RC_T62857_at	T62857	ESTs		3.6	0.002846539
Z74616_s_at	Z74616	collagen, type I, alpha 27q22.1		3.6	0.004328291
X06700_s_at	X06700	collagen, type III, alpha 1 (Ehlers-Danlos syndrome type IV, autosomal dominant)2q31		3.6	0.010596098
RC_H86112_f_at	H86112	KIAA0471 gene product1q24-q25		3.6	0.017013968
M57466_s_at	M57466	major histocompatibility complex, class II, DP beta 16p21.3		3.5	0.005924671
RC_F09281_at	F09281	ESTs		3.5	0.006841731
RC_R51831_at	R51831	ESTs		3.4	0.000941423
RC_H21814_f_at	H21814	immunoglobulin lambda gene cluster22q11.1-q11.2		3.4	0.009767098
RC_W86513_at	W86513	ESTs		3.4	0.003776481
RC_H40424_s_at	H40424	EST		3.4	0.016283906
X57025_at	X57025	insulin-like growth factor 1 (somatomedin C)12q22-q23		3.3	0.040489253
RC_AA044219_at	AA044219	BK984G1.1 (PUTATIVE C-terminal end of a novel protein with Collagen triple helix repeats)		3.3	0.001761114
RC_AA028092_s_at	AA028092	transcription factor 216pter-qter		3.3	0.003405482
RC_AA446661_at	AA446661	ESTs		3.3	0.041188995
RC_D80063_f_at	D80063	ESTs		3.3	0.049585142
M92843_s_at	M92843	zinc finger protein homologous to Zfp-36 in mouse19q13.1		3.3	0.006174082
M34516_r_at	M34516	immunoglobulin lambda-like polypeptide 322q11.2		3.2	0.02344053
M87789_s_at	M87789	immunoglobulin gamma 3 (Gm marker)14q32.33		3.2	0.004534646
N75870_s_at	N75870	dual specificity phosphatase 15q34		3.2	0.000157434
RC_AA609309_at	AA609309	ESTs, Moderately similar to !!!! ALU SUBFAMILY SB2 WARNING ENTRY !!!! [H.sapiens]		3.1	0.03780658
S59049_at	S59049	regulator of G-protein signalling 11q31		3.0	0.002419303
AFFX- HUMGAPDH/M33197 _5_at	M33197	Human GAPDH		3.0	0.034538288
RC_D51060_s_at	D51060	Jun activation domain binding protein1p32-p31		3.0	0.022390037
RC_T23468_at	T23468	ESTs		2.9	0.001634616
U30521_at	U30521	P311 protein		2.9	0.009484198
Z48501_s_at	Z48501	poly(A)-binding protein-like 13q22-q25		2.9	0.026396977
W73859_at	W73859	transcription factor 216pter-qter		2.9	0.037326183
AA093923_at	AA093923	tissue inhibitor of metalloproteinase 217q25		2.8	0.041564022
RC_AA236476_at	AA236476	ESTs, Weakly similar to (define not available 4507549) [H.sapiens]		2.7	0.038305276
U10550_at	U10550	GTP-binding protein overexpressed in skeletal muscle8q13-q21		2.7	0.040657885
RC_N24902_at	N24902	E1B-55kDa-associated protein 5		2.7	0.03810507
RC_AA056121_at	AA056121	ESTs		2.7	0.024285705

Normal1-Normal2 vs BPH-Cancer Table 1654552.1		Up-regulated Genbank	Table 2 Genbank	Fold-Change N1-N2 vs Cancer	p-value N1-N2 vs Cancer
Affy element	ID	Name			
RC_H98835_at	H98835	ESTs		2.7	0.019901442
K02405_f_at	K02405	Human MHC class II HLA-DQ-beta mRNA (DR7 DQw2), complete cds		2.7	0.00138806
U90552_s_at	U90552	butyrophilin, subfamily 3, member A16p23		2.7	3.91186E-05
RC_N59831_at	N59831	ESTs		2.7	0.04543669
L33799_at	L33799	procollagen C-endopeptidase enhancer7q22		2.7	0.010879277
RC_N59532_s_at	N59532	aminomethyltransferase (glycine cleavage system protein T)3p21.2-p21.1		2.6	0.025712285
D13628_at	D13628	angiopoietin 18q22.3-q23		2.6	0.027204836
AA156897_s_at	AA156897	Homo sapiens mRNA; cDNA DKFZp564I1922 (from clone DKFZp564I1922)		2.6	0.001580022
RC_N67876_s_at	N67876	insulin-like growth factor 1 (somatomedin C)12q22-q23		2.6	0.03992641
M73720_at	M73720	carboxypeptidase A3 (mast cell)3q21-q25		2.6	0.023298997
H49440_at	H49440	nudix (nucleoside diphosphate linked moiety X)-type motif 36p21.2		2.6	0.002498701
RC_AA250850_at	AA250850	adrenergic, beta, receptor kinase 222q11		2.5	0.041156086
RC_T49061_at	T49061	ESTs		2.5	0.00934004
W28214_at	W28214	ESTs		2.5	0.037677921
RC_H44631_s_at	H44631	immediate early protein19		2.5	0.0423037
D28137_at	D28137	bone marrow stromal cell antigen 219p13.2		2.5	0.026212334
RC_AA609027_at	AA609027	ESTs		2.5	0.038550623
RC_AA257093_r_at	AA257093	T-cell receptor, beta cluster7q35		2.4	0.002653232
RC_F13763_at	F13763	ESTs		2.4	0.016949277
RC_H08548_s_at	H08548	ATP citrate lyase17q12-q21		2.4	0.036998522
RC_AA436618_at	AA436618	ESTs		2.4	0.001789907
RC_W45664_s_at	W45664	5' nucleotidase (CD73)6q14-q21		2.4	0.001762727
AA082546_at	AA082546	ESTs		2.4	0.021791878
D10522_at	D10522	myristoylated alanine-rich protein kinase C substrate (MARCKS, 80K-L)6q22.2		2.4	0.017333686
RC_AA411860_at	AA411860	ESTs, Highly similar to (define not available 4929723) [H.sapiens]		2.4	0.02766922
AB002340_at	AB002340	KIAA0342 gene product		2.3	0.003238699
U53445_at	U53445	downregulated in ovarian cancer 13		2.3	0.009361652
AA091278_at	AA091278	ESTs		2.3	0.046253689
RC_AA486072_i_at	AA486072	small inducible cytokine A5 (RANTES)17q11.2-q12		2.3	0.012816473
RC_T53590_s_at	T53590	cytochrome P450, subfamily XIA (cholesterol side chain cleavage)15q23-q24		2.3	4.29636E-05
RC_N91971_f_at	N91971	retinol-binding protein 1, cellular3q23		2.3	0.025171598
RC_AA043777_at	AA043777	ESTs		2.3	0.004490188
RC_H54764_at	H54764	EST, Weakly similar to X-linked retinopathy protein {C-terminal, clone XEH.8c} [H.sapiens]		2.3	0.036980431
RC_AA443923_at	AA443923	ESTs		2.3	0.025833241
U60975_at	U60975	Homo sapiens gp250 precursor, mRNA, complete cds.		2.3	0.041238204
M34516_at	M34516	immunoglobulin lambda-like polypeptide 322q11.2		2.3	0.041388637
RC_N36001_at	N36001	ESTs, Weakly similar to !!!! ALU CLASS C WARNING ENTRY !!!! [H.sapiens]		2.2	0.000449076
AF010193_at	AF010193	MAD (mothers against decapentaplegic, Drosophila) homolog 718		2.2	0.005397771
AFFX-HSAC07/X00351_5_at	X00351	Human mRNA for beta-actin		2.2	0.037852217
RC_AA158262_s_at	AA158262	calpastatin5q14-q22		2.2	0.006648962
RC_AA156565_at	AA156565	4-nitrophenylphosphatase domain and non-neuronal SNAP25 like 122q12		2.2	0.020901922

Normal1-Normal2 vs BPH-Cancer Table 1654552.1		Up- regulated Genbank	Table 2 Genbank	Fold-Change N1-N2 vs Cancer	p-value N1-N2 vs Cancer
Affy element	ID	Name			
Z11793_at	Z11793	selenoprotein P, plasma, 15q31		2.2	0.00118281
RC_D80059_s_at	D80059	ESTs		2.2	0.033534432
RC_AA450324_at	AA450324	ESTs		2.2	0.024832006
RC_N39415_at	N39415	osteoglycin (osteoinductive factor)		2.2	0.032001116
RC_T23622_at	T23622	ESTs		2.2	0.040417825
RC_AA599365_at	AA599365	decorin12q23		2.2	0.011325181
X62320_at	X62320	granulin17		2.2	0.043043858
RC_R85291_at	R85291	ESTs		2.2	0.004987693
M11313_s_at	M11313	alpha-2-macroglobulin12p13.3-p12.3		2.2	0.011545737
AA047151_at	AA047151	ESTs		2.2	0.033987576
RC_AA205724_at	AA205724	ESTs		2.2	0.004569368
RC_AA086264_i_at	AA086264	ESTs, Highly similar to (define not available 4191348)		2.2	0.020637423
RC_R42424_at	R42424	[H.sapiens] ESTs		2.2	0.033603417
RC_AA347359_s_at	AA347359	lysozyme (renal amyloidosis)12		2.1	0.028764499
AA092716_at	AA092716	HLA-B associated transcript-36p21.3		2.1	0.031717351
RC_R42241_at	R42241	ESTs		2.1	0.008013968
RC_N57577_at	N57577	KIAA0663 gene product		2.1	0.032028875
RC_W67577_s_at	W67577	CD74 antigen (invariant polypeptide of major histocompatibility complex, class II antigen-associated)5q32		2.1	0.002072118
C02016_at	C02016	KIAA0447 gene product		2.1	0.002399894
RC_AA256268_at	AA256268	ESTs		2.1	0.0269568
RC_T96171_at	T96171	EST		2.1	0.012219229
X72841_at	X72841	retinoblastoma-binding protein 7		2.1	0.033774692
RC_R45698_at	R45698	ESTs		2.1	0.049975895
RC_N22006_s_at	N22006	EST		2.1	0.011131338
RC_N69222_at	N69222	ESTs		2.1	0.022256915
RC_H97538_at	H97538	ESTs		2.0	0.03795259
RC_AA039935_at	AA039935	dynein light chain, outer arm 422q12.3-q13.2		2.0	0.011488766
RC_AA084138_at	AA084138	ESTs		2.0	0.011124432
AB002379_at	AB002379	KIAA0381 protein		2.0	0.000530413
RC_AA460651_at	AA460651	heterogeneous nuclear protein similar to rat helix destabilizing protein10		2.0	0.027697892
RC_W02204_at	W02204	solute carrier family 24 (sodium/potassium/calcium exchanger), member 115q22		2.0	0.00115779
Y08614_at	Y08614	exportin 1 (CRM1, yeast, homolog)2p16		2.0	0.035368368
D31134_at	D31134	KIAA1075 protein		2.0	0.021196526
M94880_f_at	M94880	major histocompatibility complex, class I, A6p21.3		2.0	0.025382167
J03040_at	J03040	secreted protein, acidic, cysteine-rich (osteonectin)5q31.3-q32		2.0	0.035472553
RC_N68350_at	N68350	ESTs		2.0	0.042917893
RC_H48793_at	H48793	EST		2.0	0.00296551
HG3543-HT3739_at	M29645	insulin-like growth factor 2 (somatomedin A)11p15.5		2.0	0.019712374
RC_W33172_at	W33172	ESTs, Weakly similar to ORF2 [M.musculus]		2.0	0.006454106
RC_R08850_at	R08850	ESTs		2.0	0.011364766
W52638_at	W52638	ESTs		2.0	0.010612401
M19045_f_at	M19045	lysozyme (renal amyloidosis)12		2.0	0.004561974
RC_AA312946_s_at	AA312946	ESTs		2.0	0.020272205
RC_AA235310_at	AA235310	ESTs		2.0	0.011954937
X03100_cds2_at	X03100_cd s2	Human mRNA for SB classII histocompatibility antigen alpha-chain		2.0	0.002404541

Normal1-Normal2 vs BPH-Cancer Table 1654552.1		Table 2		Fold-Change N1-N2 vs Cancer	p-value N1-N2 vs Cancer
Affy element	Up-regulated Genbank ID	Genbank Name			
RC_T16282_f_at	T16282	wee1+ (S. pombe) homolog11p15.3-p15.1		2.0	0.031472155
RC_H66642_f_at	H66642	ESTs, Moderately similar to !!!! ALU SUBFAMILY SQ WARNING ENTRY !!!! [H.sapiens]		2.0	0.02460529
RC_AA342337_at	AA342337	ESTs, Moderately similar to !!!! ALU SUBFAMILY SQ WARNING ENTRY !!!! [H.sapiens]		-23.7	3.26344E-05
RC_AA398908_at	AA398908	Human Chromosome 16 BAC clone CIT987SK-A-61E3		-21.7	0.040053626
RC_H15143_s_at	H15143	Human clone 23575 mRNA, partial cds		-13.8	0.028261625
RC_N80129_i_at	N80129	metallothionein 1L16q13		-12.6	0.002146038
RC_AA465394_at	AA465394	ESTs		-12.6	0.004961162
RC_AA236545_at	AA236545	ESTs		-12.5	0.034938167
RC_W42778_at	W42778	Homo sapiens clone 24636 mRNA sequence		-12.3	0.010449419
RC_T40895_at	T40895	ESTs		-12.0	0.01968535
RC_H94475_s_at	H94475	alpha-2-plasmin inhibitor17pter-p12		-11.7	0.012919819
RC_R71792_s_at	R71792	ESTs, Moderately similar to FAT-SPECIFIC PROTEIN FSP27 [M.musculus]		-10.4	0.002540356
RC_AA609006_at	AA609006	ESTs		-7.5	0.013902978
RC_AA026641_s_at	AA026641	secretory leukocyte protease inhibitor (antileukoproteinase)		-7.0	0.01850877
X65614_at	X65614	S100 calcium-binding protein P4p16		-6.7	0.005634308
X93036_at	X93036	phospholemman-like, expressed in breast tumors, 8kD		-6.6	0.005278275
RC_T94447_s_at	T94447	ESTs, Moderately similar to (define not available 4335935) [M.musculus]		-5.7	0.006891909
RC_AA405488_at	AA405488	ESTs		-5.5	0.00023986
RC_T73433_s_at	T73433	angiotensinogen1q41-qter		-5.5	0.009418205
M99487_at	M99487	folate hydrolase (prostate-specific membrane antigen) 111p11.2		-5.3	0.008067789
RC_W88568_at	W88568	glycogenin 2Xp22.3		-5.1	0.024739084
RC_AA460914_at	AA460914	ESTs		-5.0	0.024385552
X57129_at	X57129	H1 histone family, member 26p21.3		-4.8	0.006322499
RC_Z41642_at	Z41642	ESTs		-4.7	0.009525521
RC_R46074_at	R46074	transforming, acidic coiled-coil containing protein 210q26		-4.7	0.001327844
J03910_rna1_at	J03910_rna1	metallothionein 1G16q13		-4.6	0.004574277
RC_AA350265_at	AA350265	histone deacetylase A		-4.5	0.002897414
AA165312_at	AA165312	ESTs		-4.2	0.005487803
RC_AA419011_at	AA419011	Homo sapiens mRNA; cDNA DKFZp586D0823 (from clone DKFZp586D0823)		-4.0	0.019079557
RC_N92502_s_at	N92502	ESTs, Moderately similar to HERV-E integrase [H.sapiens]		-4.0	0.030144039
RC_F03969_at	F03969	ESTs, Weakly similar to tumorous imaginal discs protein Tid56 homolog [H.sapiens]		-4.0	0.017024613
X76717_at	X76717	metallothionein 1L16q13		-3.9	0.001145402
RC_AA416762_s_at	AA416762	nuclear receptor subfamily 1, group H, member 219q13.3- 19q13.3		-3.8	0.011735303
RC_AA053424_at	AA053424	ESTs, Weakly similar to mucin Muc3 [R.norvegicus]		-3.8	0.009737433
X64177_f_at	X64177	metallothionein 1H16q13		-3.7	0.003297195
RC_N32748_at	N32748	ESTs		-3.6	0.021454174
RC_AA416685_at	AA416685	UNC13 (C. elegans)-like9p11-p12		-3.6	0.016338392
RC_AA505136_at	AA505136	ESTs		-3.5	0.007200396
RC_AA165313_at	AA165313	ESTs		-3.5	0.037649191
RC_F02245_at	F02245	monoamine oxidase AXp11.4-p11.3		-3.4	0.005486135
RC_AA004699_at	AA004699	putative translation initiation factor		-3.4	0.00057505
RC_AA599331_at	AA599331	ESTs		-3.4	0.01136457

Normal1-Normal2 vs BPH-Cancer Table 1654552.1		Up-regulated Genbank	Table 2	Fold-Change	p-value
Affy element	ID	Name	Genbank	N1-N2 vs Cancer	N1-N2 vs Cancer
RC_N26904_at	N26904	ESTs, Weakly similar to FK506/rapamycin-binding protein FKBP13 precursor [H.sapiens]		-3.3	0.045410608
RC_AA070752_s_at	AA070752	insulin receptor substrate 12q36		-3.3	0.028433761
RC_AA599522_f_at	AA599522	squamous cell carcinoma antigen recognised by T cells		-3.2	0.005311305
RC_N94303_at	N94303	ESTs		-3.1	0.000160723
RC_F10078_at	F10078	ESTs		-3.1	0.022464594
RC_AA447537_at	AA447537	ESTs, Moderately similar to (define not available 5360237) [M.musculus]		-3.1	0.007323728
L77701_at	L77701	human homolog of yeast mitochondrial copper recruitment gene		-3.0	0.001489928
RC_H27675_at	H27675	ESTs		-3.0	0.016160504
V00594_at	V00594	metallothionein 2A16q13		-2.9	0.001495259
U52969_at	U52969	Purkinje cell protein 421q22.2-q22.3		-2.9	6.3447E-05
RC_R42607_at	R42607	ESTs		-2.8	0.008960052
RC_AA451836_at	AA451836	ESTs		-2.7	0.008401586
RC_F04492_at	F04492	ESTs, Weakly similar to !!!! ALU SUBFAMILY J WARNING ENTRY !!!! [H.sapiens]		-2.7	0.001443051
RC_H77597_f_at	H77597	metallothionein 1H16q13		-2.7	0.00332868
RC_AA430388_at	AA430388	ESTs, Moderately similar to !!!! ALU SUBFAMILY SQ WARNING ENTRY !!!! [H.sapiens]		-2.7	0.000114004
RC_T90190_s_at	T90190	H1 histone family, member 26p21.3		-2.7	0.030242714
RC_H16171_f_at	H16171	cleft lip and palate associated transmembrane protein 119q13.2-q13.3		-2.7	0.023414443
RC_AA022886_at	AA022886	ESTs, Weakly similar to phosphatidylinositol transfer protein [H.sapiens]		-2.7	0.00489294
RC_R28370_at	R28370	ESTs		-2.7	0.003724547
RC_AA261907_at	AA261907	ESTs, Weakly similar to (define not available 3874144) [C.elegans]		-2.6	0.043689441
RC_W37778_f_at	W37778	ESTs, Weakly similar to envelope protein [H.sapiens]		-2.6	0.030756837
RC_T98019_at	T98019	EST, Highly similar to PEREGRIN [H.sapiens]		-2.5	0.035566681
RC_N33927_s_at	N33927	H2B histone family, member B6p21.3		-2.5	0.013093926
RC_R40431_at	R40431	Homo sapiens mRNA; cDNA DKFZp564D016 (from clone DKFZp564D016)		-2.5	0.004235538
RC_AA133756_at	AA133756	Rho-associated, coiled-coil containing protein kinase 22p24		-2.5	0.012389163
RC_AA152200_s_at	AA152200	ESTs		-2.5	0.004366137
W63793_at	W63793	S-adenosylmethionine decarboxylase 16q21-q22		-2.5	0.005714247
RC_AA410298_at	AA410298	ESTs		-2.5	0.018744617
X99728_at	X99728	H.sapiens NDUFV3 gene, exon 3		-2.5	0.004580383
RC_W78127_at	W78127	ESTs, Weakly similar to KIAA0425 [H.sapiens]		-2.5	0.001240164
RC_R96924_s_at	R96924	ESTs		-2.5	0.006515911
RC_H16768_at	H16768	ESTs		-2.5	0.005669237
X76180_at	X76180	sodium channel, nonvoltage-gated 1 alpha12p13		-2.5	0.007625025
RC_AA432162_at	AA432162	Homo sapiens mRNA; cDNA DKFZp586B2022 (from clone DKFZp586B2022)		-2.4	0.010199113
RC_H88798_at	H88798	ESTs		-2.4	0.000783143
RC_AA609312_at	AA609312	ESTs		-2.4	0.016243321
RC_AA131919_at	AA131919	putative type II membrane protein		-2.4	0.000264791
RC_N80129_f_at	N80129	metallothionein 1L16q13		-2.4	0.002297016
RC_AA182030_at	AA182030	ESTs		-2.4	0.041632378
W70167_at	W70167	ESTs		-2.4	0.00395969
RC_AA599522_r_at	AA599522	squamous cell carcinoma antigen recognised by T cells		-2.4	0.004347078
RC_N52254_s_at	N52254	SH3-binding domain glutamic acid-rich protein21q22.3		-2.4	0.011171389
RC_N95495_at	N95495	small inducible cytokine A5 (RANTES)17q11.2-q12		-2.4	0.002430242

Normal1-Normal2 vs BPH-Cancer Table 1654552.1		Table 2		Fold-Change	p-value
Affy element	Up-regulated Genbank ID	Genbank Name		N1-N2 vs Cancer	N1-N2 vs Cancer
RC_T68873_f_at	T68873	metallothionein 1L16q13		-2.4	0.00320019
AA429539_f_at	AA429539	ESTs		-2.4	0.020751882
RC_AA435769_s_at	AA435769	ESTs		-2.4	0.009832353
RC_AA029356_at	AA029356	ESTs		-2.3	0.007208722
AA316686_s_at	AA316686	ESTs, Highly similar to huntingtin interacting protein HYPK [H.sapiens]		-2.3	0.000225753
RC_H02308_at	H02308	ESTs		-2.3	0.041776289
RC_AA258476_at	AA258476	Homo sapiens mRNA; cDNA DKFZp564J0323 (from clone DKFZp564J0323)		-2.3	0.02070961
X06956_at	X06956	tubulin, alpha 1 (testis specific)2q		-2.3	0.003656874
RC_H99694_at	H99694	ESTs		-2.3	0.013645335
RC_AA479044_s_at	AA479044	ESTs, Weakly similar to PROGASTRICSIN PRECURSOR [H.sapiens]		-2.3	0.047032301
RC_AA436861_at	AA436861	ESTs		-2.3	0.001794201
M24069_at	M24069	cold shock domain protein A12p13.1		-2.3	0.014123514
RC_AA410311_at	AA410311	ESTs		-2.3	0.045227011
W52858_at	W52858	Homo sapiens mRNA; cDNA DKFZp564F0522 (from clone DKFZp564F0522)		-2.3	0.002276405
RC_W38197_at	W38197	EST		-2.3	1.96016E-05
J00073_at	J00073	actin, alpha, cardiac muscle15q11-qter		-2.3	0.018476889
RC_D51069_f_at	D51069	melanoma adhesion molecule		-2.3	0.042693395
RC_AA504805_s_at	AA504805	interferon stimulated gene (20kD)15q26		-2.3	0.008805886
RC_F03254_f_at	F03254	synuclein, alpha (non A4 component of amyloid precursor)4q21		-2.3	0.003668915
M35252_at	M35252	transmembrane 4 superfamily member 3		-2.3	0.028083185
RC_AA040731_at	AA040731	ESTs		-2.2	0.028924808
RC_AA496247_at	AA496247	ESTs		-2.2	0.013336314
X59766_at	X59766	alpha-2-glycoprotein 1, zinc7		-2.2	0.002003511
RC_R84421_at	R84421	eukaryotic translation elongation factor 1 alpha 16q14		-2.2	0.016333706
AA328993_s_at	AA328993	ESTs		-2.2	0.004438605
RC_R44535_f_at	R44535	endonuclease G9q34.1		-2.2	0.014319616
U41518_at	U41518	aquaporin 1 (channel-forming integral protein, 28kD)7p14		-2.2	0.009447457
RC_W33179_at	W33179	testis-specific kinase 21p32		-2.2	0.001104272
RC_H58873_s_at	H58873	solute carrier family 2 (facilitated glucose transporter), member 11p35-p31.3		-2.2	0.000238641
RC_R31679_s_at	R31679	ESTs		-2.2	0.01000414
RC_AA189083_at	AA189083	ESTs, Highly similar to (define not available 4589468) [M.musculus]		-2.2	0.002468046
RC_AA251769_at	AA251769	ESTs, Weakly similar to Containing ATP/GTP-binding site motif A(P-loop): Similar to C.elegans protein(P1:CEC47E128);Similar to Mouse alpha-mannosidase(P1:B54407) [H.sapiens]		-2.2	0.010819016
RC_W70131_at	W70131	ESTs		-2.2	0.02955725
RC_R09379_at	R09379	solute carrier family 11 (proton-coupled divalent metal ion transporters), member 212q13		-2.2	0.009730513
RC_AA621695_at	AA621695	ESTs		-2.1	0.001994051
RC_H18947_at	H18947	ESTs		-2.1	0.027246274
RC_AA219552_s_at	AA219552	ESTs		-2.1	0.046510941
RC_N22620_at	N22620	ESTs		-2.1	0.013527392
RC_R02003_r_at	R02003	ESTs, Weakly similar to cappuccino [D.melanogaster]		-2.1	0.010597095
RC_AA405559_at	AA405559	ESTs		-2.1	0.009305601
RC_AA463693_at	AA463693	ESTs, Weakly similar to SERINE/THREONINE-PROTEIN KINASE NEK3 [H.sapiens]		-2.1	0.004156996

Normal1-Normal2 vs BPH-Cancer Table 1654552.1		Up- regulated Genbank	Table 2 Genbank	Fold-Change	p-value
Affy element	ID	Name		N1-N2 vs Cancer	N1-N2 vs Cancer
RC_AA481407_at	AA481407	ESTs		-2.1	0.002741696
M11119_at	M11119	Human endogenous retrovirus envelope region mRNA (PL1)		-2.1	0.003718876
RC_AA159025_at	AA159025	ESTs, Highly similar to (define not available 4680655)		-2.1	0.011127532
RC_AA411981_at	AA411981	ESTs, Weakly similar to putative seven pass transmembrane protein [H.sapiens]		-2.1	0.044294612
RC_W57931_at	W57931	ESTs, Moderately similar to CATHEPSIN D PRECURSOR [H.sapiens]		-2.1	0.000755739
X66899_at	X66899	Ewing sarcoma breakpoint region 122q12		-2.1	0.002068901
RC_R49327_at	R49327	solute carrier family 11 (proton-coupled divalent metal ion transporters), member 212q13		-2.1	0.030928835
RC_AA609645_at	AA609645	eukaryotic translation initiation factor 4 gamma, 13q27-qter		-2.1	0.04955957
RC_AA434108_at	AA434108	Homo sapiens heat shock protein hsp40-3 mRNA, complete cds		-2.1	0.034468752
X17567_s_at	X17567	small nuclear ribonucleoprotein polypeptides B and B120		-2.1	0.014475221
J04164_at	J04164	interferon-induced protein 17		-2.1	0.023410352
RC_AA135929_s_at	AA135929	ESTs, Highly similar to (define not available 4103057)		-2.1	0.003009065
L04270_at	L04270	lymphotoxin beta receptor (TNFR superfamily, member 312p13		-2.1	0.006776988
RC_H99035_at	H99035	ESTs		-2.1	0.001053884
M64673_at	M64673	heat shock transcription factor 1		-2.1	0.004283001
X85785_rna1_at	X85785_rna1	Duffy blood group 1q21-q22		-2.1	0.00657464
M68864_at	M68864	Human ORF mRNA, complete cds		-2.1	0.010185833
D50928_at	D50928	KIAA0138 gene product		-2.1	0.002283064
RC_AA282247_at	AA282247	ESTs		-2.0	0.007970044
RC_R00144_at	R00144	ESTs		-2.0	0.006939854
RC_AA485965_at	AA485965	ESTs, Highly similar to (define not available 4336766)		-2.0	0.000405037
S45630_at	S45630	crystallin, alpha B11q22.3-q23.1		-2.0	0.006157273
RC_T89703_at	T89703	ESTs, Highly similar to (define not available 4455129)		-2.0	0.000286616
RC_Z38785_at	Z38785	Homo sapiens clone 23940 mRNA sequence		-2.0	0.00706437
X85373_at	X85373	small nuclear ribonucleoprotein polypeptide G		-2.0	6.93881E-05
RC_F04816_at	F04816	ESTs		-2.0	0.005353184
RC_AA043349_at	AA043349	ESTs		-2.0	0.01749596
RC_H84761_s_at	H84761	glutathione peroxidase 13p21.3		-2.0	0.000116621
M34338_s_at	M34338	spermidine synthase1p36-p22		-2.0	0.008566137
L13698_at	L13698	growth arrest-specific 19q21.3-q22.1		-2.0	0.016504513
RC_N75960_at	N75960	ESTs		-2.0	0.024082428
D45370_at	D45370	adipose specific 210		-2.0	0.034362163
RC_AA401965_at	AA401965	tumor suppressor deleted in oral cancer-related 111q13		-2.0	0.011190087
RC_F09315_at	F09315	discs, large (Drosophila) homolog 510q23		-2.0	0.020753036
RC_AA025370_at	AA025370	KIAA0872 protein		-2.0	0.026565555
RC_H52835_at	H52835	phytanoyl-CoA hydroxylase (Refsum disease)10pter-p11.2		-2.0	0.015021251
RC_H99648_s_at	H99648	DNA segment, single copy probe LNS-CAI/LNS-CAII (deleted in polyposis5q22-q23		-2.0	0.012115852
RC_AA430074_at	AA430074	ESTs		-2.0	0.002355049
RC_AA598939_at	AA598939	ESTs		-2.0	0.011383872
AA455001_s_at	AA455001	ESTs		-2.0	0.000176199
RC_F09684_at	F09684	ESTs		-2.0	0.002741682
D42073_at	D42073	reticulocalbin 1, EF-hand calcium binding domain11p13		-2.0	0.012881688

Normal1-Normal2 vs BPH-Cancer Table 1654552.1		Up- regulated Genbank	Table 2 Genbank	Fold-Change	p-value
Affy element	ID	Name		N1-N2 vs Cancer	N1-N2 vs Cancer
RC_AA598695_at	AA598695	ESTs, Weakly similar to !!!! ALU SUBFAMILY SX WARNING ENTRY !!!! [H.sapiens]		-2.0	4.77268E-06
D23662_at	D23662	neural precursor cell expressed, developmentally down-regulated 8		-2.0	0.003156141
RC_AA431470_at	AA431470	protein kinase (cAMP-dependent, catalytic) inhibitor gamma20q		-2.0	0.038692982
RC_AA399273_at	AA399273	ESTs		-2.0	0.029403118
RC_AA142858_at	AA142858	ESTs		-2.0	0.00197166
RC_Z40715_at	Z40715	Homo sapiens mRNA; cDNA DKFZp586C201 (from clone DKFZp586C201)		-2.0	0.017206338
RC_AA490341_s_at	AA490341	ESTs		-2.0	0.004570941
RC_N67815_f_at	N67815	ESTs, Weakly similar to (defline not available 4680655) [H.sapiens]		-2.0	0.002996692
RC_N53359_at	N53359	ESTs		-2.0	0.034916164

Normal vs. BPH W/Symptoms Table **TABLE 3**

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Up-regulated	Affy element	GenBank ID	GenBank Name	Fold-change	t
1	N40141_at	N40141	JM27 protein	17.4	-7.64
2	rc_N23730_s_at	N23730	v-fos FBJ murine osteosarcoma viral oncogene homolog	10.8	-7.54
3	rc_AA463726_s_at	AA463726	JM27 protein	10.0	-6.56
4	rc_N23352_s_at	N23352	proenkephalin	10.0	-4.53
5	rc_H64493_f_at	H64493	immunoglobulin heavy constant gamma 3 (G3m marker)	9.1	-4.36
6	V01512_rna1_at	V01512	v-fos FBJ murine osteosarcoma viral oncogene homolog	9.1	-7.40
7	rc_H05704_r_at	H05704	PCR (alpha helix coiled-coil rod homologue)	8.1	-2.79
8	L49169_at	L49169	FBJ murine osteosarcoma viral oncogene homolog B	8.0	-5.81
9	rc_AA410383_at	AA410383	B-cell-homing chemokine (ligand for Burkitt's lymphoma receptor-1)	7.5	-3.95
10	rc_AA131322_s_at	AA131322	tryptase, alpha, tryptase, beta (tryptase II)	7.2	-2.81
11	R56183_s_at	R56183	eukaryotic translation initiation factor 3, subunit 6 (48kD)	6.9	-2.77
12	rc_AA461300_at	AA461300	ESTs	6.9	-7.08
13	J00231_f_at	J00231	immunoglobulin heavy constant gamma 3 (G3m marker)	6.7	-4.62
14	rc_AA427622_s_at	AA427622	Collagen, type XIII, alpha 1	6.6	-8.25
15	rc_T90889_at	T90889	ESTs	5.6	-3.72
16	rc_AA402903_f_at	AA402903	immunoglobulin heavy constant gamma 3 (G3m marker)	5.6	-3.61
17	rc_T23622_at	T23622	ESTs	5.5	-5.24
18	rc_T62857_at	T62857	ESTs	5.4	-7.85
19	rc_AA256268_at	AA256268	ESTs	5.3	-6.86
20	rc_R44714_s_at	R44714	ESTs	5.3	-4.83
21	rc_AA236476_at	AA236476	transmembrane protein TENB2,	5.1	-3.13
22	rc_AA028092_s_at	AA028092	transcription factor 21	5.1	-5.24
23	rc_T90619_f_at	T90619	actin, gamma 1	5.0	-2.19
24	J00123_at	J00123	proenkephalin	5.0	-3.96
25	X52541_at	X52541	early growth response 1	4.9	-5.78
26	rc_AA620825_at	AA620825	CGI-43 protein	4.9	-4.59
27	rc_AA424530_s_at	AA424530	ESTs	4.9	-5.42
28	rc_AA386386_s_at	AA386386	procollagen-proline, 2-oxoglutarate 4-dioxygenase (proline 4-hydroxylase), beta polypeptide (protein disulfide isomerase; thyroid hormone binding protein p55)	4.9	-2.64
29	U62015_at	U62015	cysteine-rich, angiogenic inducer, 61	4.9	-6.24
30	rc_AA188981_at	AA188981	highly expressed in cancer, rich in leucine heptad repeats	4.9	-6.67
31	rc_H21814_f_at	H21814	immunoglobulin lambda locus	4.9	-2.67
32	M60314_at	M60314	bone morphogenetic protein 5	4.7	-10.82
33	rc_T67053_f_at	T67053	immunoglobulin lambda locus	4.7	-2.84
34	rc_N47686_s_at	N47686	solute carrier family 14 (urea transporter), member 1 (Kidd blood group)	4.7	-3.27
35	rc_AA436616_at	AA436616	ESTs	4.7	-6.34
36	rc_H60595_s_at	H60595	progesterone binding protein	4.7	-2.66
37	rc_H88338_at	H88338	ESTs	4.7	-7.93
38	M33653_at	M33653	collagen, type XIII, alpha 1	4.6	-8.95
39	rc_N30198_at	N30198	ESTs	4.5	-5.87
40	D83018_at	D83018	nel (chicken)-like 2	4.5	-9.79
41	rc_Z39904_at	Z39904	ESTs	4.5	-6.27
42	H61295_s_at	H61295	CD4 antigen (p55)	4.4	-4.49
43	rc_AA281345_f_at	AA281345	immediate early protein	4.3	-6.62
44	rc_T23490_s_at	T23490	hypothetical protein FLJ20185	4.2	-5.25
45	rc_AA279760_at	AA279760	DKFZP564M182 protein	4.2	-3.73

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Up-regulated	Affy element	GenBank ID	GenBank Name	Fold-change	t
46	rc_R25410_at	R25410	ESTs	4.2	-4.69
47	rc_T03229_f_at	T03229	ESTs	4.2	-3.37
48	rc_R93908_at	R93908	ESTs	4.2	-3.39
49	AA374109_at	AA374109	spondin 2, extracellular matrix protein	4.2	-1.97
50	rc_R45654_at	R45654	collagen, type XIII, alpha 1	4.2	-5.69
51	rc_H86112_f_at	H86112	KIAA0471 gene product	4.1	-4.00
52	rc_AA257093_r_at	AA257093	T cell receptor beta locus	4.1	-7.77
53	rc_AA456147_at	AA456147	general transcription factor IIIA	4.1	-6.23
54	U21128_at	U21128	lumican	4.1	-6.15
55	rc_AA057195_at	AA057195	TNF? elastin microfibril interface located protein	4.1	-2.22
56	M63438_s_at	M63438	immunoglobulin kappa variable 1D-8	4.0	-2.53
57	M57466_s_at	M57466	major histocompatibility complex, class II, DP beta 1	4.0	-3.91
58	rc_AA443923_at	AA443923	cat eye syndrome critical region gene 1	4.0	-3.01
59	rc_N39415_at	N39415	DKFZP586P2421 protein	4.0	-5.70
60	rc_W67225_at	W67225	KIAA0592 protein	4.0	-3.35
61	M62831_at	M62831	immediate early protein	4.0	-6.39
62	rc_AA404957_at	AA404957	matrix Gla protein	4.0	-3.84
63	rc_F02992_at	F02992	ESTs	4.0	-3.65
64	U69263_at	U69263	matrilin 2	3.9	-4.84
65	rc_AA448625_at	AA448625	slit (Drosophila) homolog 3	3.9	-4.13
66	X57025_at	X57025	insulin-like growth factor 1 (somatomedin C)	3.9	-3.93
67	AA151544_at	AA151544	matrix metalloproteinase 23B	3.8	-5.54
68	rc_F13763_at	F13763	ESTs	3.8	-6.39
69	rc_AA436655_at	AA436655	hypothetical protein FLJ10781	3.8	-5.13
70	M87789_s_at	M87789	immunoglobulin heavy constant gamma 3 (G3m	3.8	-3.93
71	L44416_at	L44416	DEAF1 (Asp-Glu-Ala-Asp/His) box polypeptide 17 (72kD)	3.8	-1.75
72	U20350_at	U20350	chemokine (C-X3-C) receptor 1	3.8	-6.50
73	rc_AA449749_at	AA449749	ESTs	3.8	-4.52
74	rc_W73790_f_at	W73790	immunoglobulin lambda-like polypeptide 1	3.7	-2.95
75	rc_AA281145_at	AA281145	ESTs	3.7	-1.77
76	rc_f09748_s_at	f09748	ESTs	3.7	-4.12
77	rc_T64211_at	T64211	HNOEL-iso protein	3.7	-5.35
78	rc_N80152_at	N80152	RNA binding motif protein 6	3.7	-2.40
79	rc_AA436618_at	AA436618	microtubule-associated protein 2	3.7	-4.67
80	T85532_f_at	T85532	ESTs	3.7	-1.90
81	rc_AA398280_at	AA398280	ESTs	3.6	-3.11
82	rc_T23468_at	T23468	CGI-119 protein	3.6	-4.67
83	AA195678_at	AA195678	actin binding protein; macrophin (microfilament and actin filament cross-linker protein)	3.6	-3.48
84	AB002335_at	AB002335	KIAA0337 gene product	3.6	-4.21
85	rc_AA598982_s_at	AA598982	KIAA1114 protein, trophinin	3.6	-4.58
86	J03507_at	J03507	complement component 7	3.6	-6.21
87	J04130_s_at	J04130	small inducible cytokine A4 (homologous to mouse Mip-1b)	3.5	-4.76
88	AA495865_at	AA495865	ESTs	3.5	-3.65
89	HG3543-HT3739_	HG3543-HT	insulin-like growth factor 2 (somatomedin A)	3.5	-4.69
90	rc_AA599662_s_at	AA599662	KIAA0534 protein	3.5	-4.32
91	rc_AA486072_i_at	AA486072	small inducible cytokine A5 (RANTES)	3.5	-3.88
92	rc_Z39983_s_at	Z39983	KIAA0561 protein	3.5	-5.56
93	rc_F02333_at	F02333	hypothetical protein FLJ20093	3.5	-2.23

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Up-regulated	Affy element	GenBank ID	GenBank Name	Fold-change	t
94	rc_AA151210_at	AA151210	ESTs	3.5	-4.20
95	rc_N92239_at	N92239	Wnt inhibitory factor-1	3.5	-3.06
96	rc_AA173223_at	AA173223	ESTs	3.5	-5.22
97	rc_T86148_s_at	T86148	pituitary tumor-transforming 1 interacting protein	3.5	-2.15
98	AA214688_at	AA214688	eukaryotic translation initiation factor 4B	3.5	-3.13
99	rc_AA216589_at	AA216589	ESTs	3.5	-4.40
100	rc_AA446661_at	AA446661	hypothetical protein FLJ10970	3.4	-3.69
101	AA082546_at	AA082546	ESTs	3.4	-4.12
102	rc_W46395_at	W46395	chromobox homolog 6	3.4	-2.41
103	rc_AA401433_at	AA401433	ESTs	3.4	-3.17
104	D62965_at	D62965	ESTs	3.4	-2.07
105	rc_AA057829_s_at	AA057829	growth arrest-specific 6	3.4	-2.00
106	rc_AA009755_at	AA009755	ESTs	3.3	-4.77
107	AA247204_at	AA247204	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 16	3.3	-2.85
108	D13628_at	D13628	angiopoietin 1	3.3	-4.86
109	rc_N59866_at	N59866	ESTs	3.3	-4.39
110	rc_AA406371_at	AA406371	ESTs	3.3	-4.98
111	rc_N67876_s_at	N67876	insulin-like growth factor 1 (somatomedin C)	3.3	-3.06
112	M84526_at	M84526	D component of complement (adipsin)	3.3	-3.06
113	rc_AA234095_at	AA234095	hypothetical protein FLJ20701	3.3	-3.78
114	rc_D60074_s_at	D60074	cadherin 10 (T2-cadherin)	3.3	-5.05
115	rc_T49602_s_at	T49602	ESTs	3.3	-3.36
116	rc_n22006_s_at	n22006	ESTs	3.3	-3.88
117	rc_F04112_f_at	F04112	ESTs	3.3	-3.26
118	rc_T64223_s_at	T64223	carboxypeptidase A3 (mast cell)	3.3	-2.97
119	U23946_at	U23946	RNA binding motif protein 5	3.2	-3.48
120	rc_AA358038_at	AA358038	SH3-binding domain glutamic acid-rich protein like	3.2	-3.21
121	rc_AA019433_at	AA019433	ESTs	3.2	-3.88
122	X03689_s_at	X03689	eukaryotic translation elongation factor 1 alpha 1	3.2	-1.91
123	rc_H17550_at	H17550	ESTs	3.2	-2.90
124	rc_AA047880_at	AA047880	prothymosin, alpha (gene sequence 28)	3.2	-5.88
125	rc_AA084138_at	AA084138	ESTs	3.2	-7.93
126	rc_AA599365_at	AA599365	decorin	3.2	-4.42
127	rc_N91971_f_at	N91971	retinol-binding protein 1, cellular	3.2	-4.13
128	rc_T62873_at	T62873	ESTs	3.2	-2.12
129	rc_N49899_at	N49899	ESTs	3.2	-3.73
130	AA298981_at	AA298981	fibulin 5	3.2	-6.06
131	rc_AA479286_at	AA479286	ESTs	3.2	-3.54
132	J04111_at	J04111	v-jun avian sarcoma virus 17 oncogene homolog	3.2	-5.47
133	rc_AA465491_at	AA465491	Mad4 homolog	3.2	-2.75
134	W28548_at	W28548	ESTs	3.2	-3.59
135	AA308998_at	AA308998	endothelial differentiation-related factor 1	3.2	-2.89
136	rc_AA488432_at	AA488432	phosphoserine phosphatase	3.2	-3.48
137	rc_AA598991_at	AA598991	amyloid beta (A4) precursor protein-binding, family A, member 2 (X11-like)	3.1	-4.51
138	AA463311_at	AA463311	hypothetical protein similar to mouse Fbw5	3.1	-2.57
139	rc_AA147224_at	AA147224	ESTs	3.1	-4.41
140	rc_AA609504_at	AA609504	fibronectin leucine rich transmembrane protein 2	3.1	-3.81
141	U20734_s_at	U20734	jun B proto-oncogene	3.1	-3.37
142	U06863_at	U06863	folliculin-like 1	3.1	-2.48

Normal vs. BPH W/Symptoms Table **TABLE 3**

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Up-regulated	Affy element	GenBank ID	GenBank Name	Fold-change	t
143	W51743_at	W51743	ESTs	3.1	-2.95
144	rc_AA465093_at	AA465093	TIA1 cytotoxic granule-associated RNA-binding protein	3.1	-5.34
145	rc_AA219100_at	AA219100	DKFZP586P2421 protein	3.1	-4.09
146	rc_R42424_at	R42424	ESTs	3.1	-3.82
147	rc_W73038_at	W73038	ESTs	3.1	-2.23
148	AA091278_at	AA091278	hypothetical protein FLJ10793	3.1	-2.75
149	rc_AA620289_at	AA620289	PRO0518 protein	3.1	-2.55
150	rc_AA149579_at	AA149579	prostate cancer associated protein 1	3.1	-2.66
151	M21121_at	M21121	small inducible cytokine A5 (RANTES)	3.1	-4.97
152	rc_AA427890_at	AA427890	ESTs	3.1	-4.32
153	M34516_r_at	M34516	immunoglobulin lambda-like polypeptide 1	3.1	-3.47
154	rc_AA233347_at	AA233347	zinc finger protein 216	3.1	-2.43
155	rc_W74533_at	W74533	latrophilin	3.1	-3.51
156	rc_AA029597_at	AA029597	bone morphogenetic protein 7 (osteogenic protein 1)	3.1	-3.80
157	rc_N91887_s_at	N91887	thymosin, beta, identified in neuroblastoma cells	3.1	-4.47
158	rc_AA205724_at	AA205724	ESTs	3.0	-6.70
159	U30521_at	U30521	P311 protein	3.0	-6.06
160	X07109_at	X07109	protein kinase C, beta 1	3.0	-4.90
161	D82346_at	D82346	potassium voltage-gated channel, KQT-like subfamily, member 2	3.0	-3.49
162	rc_AA478962_at	AA478962	ESTs	3.0	-3.35
163	rc_AA151428_s_at	AA151428	matrix metalloproteinase 23A,matrix metalloproteinase 23B	3.0	-2.78
164	rc_AA130349_at	AA130349	ESTs	3.0	-2.01
165	M18737_rna1_at	M18737	granzyme A (granzyme 1, cytotoxic T-lymphocyte-associated serine esterase 3)	3.0	-5.90
166	rc_N91461_at	N91461	ESTs	3.0	-3.43
167	rc_AA045481_at	AA045481	ESTs	3.0	-3.70
168	U91903_at	U91903	frizzled-related protein	3.0	-4.73
169	U19495_s_at	U19495	stromal cell-derived factor 1	3.0	-4.38
170	M33493_s_at	M33493	tryptase, alpha,tryptase, beta (tryptase II)	3.0	-3.12
171	Y12711_at	Y12711	progesterone binding protein	3.0	-2.33
172	rc_N58172_at	N58172	ESTs	3.0	-2.53
173	M12529_at	M12529	apolipoprotein E	3.0	-1.92
174	rc_AA412505_at	AA412505	ESTs	3.0	-3.35
175	U45955_at	U45955	glycoprotein M6B	3.0	-4.09
176	rc_H56673_at	H56673	ESTs	3.0	-4.25
177	L33799_at	L33799	procollagen C-endopeptidase enhancer	3.0	-4.72
178	rc_Z40186_at	Z40186	ESTs	3.0	-2.22
179	AA094800_at	AA094800	eukaryotic translation initiation factor 3, subunit 7 (zeta, 66/67kD)	2.9	-2.56
180	D21063_at	D21063	minichromosome maintenance deficient (S. cerevisiae) 2 (mitotin)	2.9	-5.27
181	rc_AA412049_at	AA412049	ESTs	2.9	-2.63
182	rc_AA599661_at	AA599661	ESTs	2.9	-8.62
183	L02870_s_at	L02870	collagen, type VII, alpha 1 (epidermolysis bullosa, dystrophic, dominant and recessive)	2.9	-4.69
184	rc_AA232266_s_at	AA232266	ESTs	2.9	-3.22
185	L02321_at	L02321	glutathione S-transferase M5	2.9	-3.33
186	rc_AA428325_at	AA428325	SEC14 (S. cerevisiae)-like 2	2.9	-3.52
187	D82534_at	D82534	f-box and leucine-rich repeat protein 5	2.9	-2.20
188	rc_T32113_at	T32113	KIAA0657 protein	2.9	-2.47

Normal vs. BPH W/Symptoms Table **TABLE 3** 1654540.1

Up-regulated	Affy element	GenBank ID	GenBank Name	Fold-change	t
189	rc_R10896_at	R10896	cytochrome c oxidase subunit VIIa polypeptide 2 like	2.9	-1.99
190	rc_AA019034_i_at	AA019034	ESTs	2.9	-4.40
191	D28423_at	D28423	ESTs	2.9	-2.31
192	rc_AA609943_at	AA609943	ESTs	2.9	-3.86
193	W69302_at	W69302	ESTs	2.9	-2.68
194	rc_H01824_f_at	H01824	GATA-binding protein 2	2.9	-3.82
195	rc_T67105_s_at	T67105	ESTs	2.9	-5.49
196	rc_AA426372_s_at	AA426372	H1 histone family, member X	2.9	-2.53
197	rc_T98288_f_at	T98288	ESTs	2.9	-2.66
198	rc_N63047_at	N63047	ESTs	2.9	-5.25
199	U57316_at	U57316	GCN5 (general control of amino-acid synthesis, yeast, homolog)-like 2	2.9	-3.59
200	rc_AA219304_s_at	AA219304	alpha-2-macroglobulin	2.9	-1.76

## Normal vs. BPH W/Symptoms Table

## TABLE 4

1654540.1

Down-regulated	Affy element	GenBank ID	GenBank Name	Fold-change	t
1	rc_T40895_at	T40895	protein tyrosine phosphatase type IVA, member 1	16.5	5.19
2	rc_N80129_i_at	N80129	metallothionein 1L	12.6	3.54
3	rc_AA460914_at	AA460914	ESTs	7.4	4.58
4	rc_AA234996_s_at	AA234996	cytochrome c oxidase subunit VIa polypeptide 2	7.2	4.10
5	X66141_at	X66141	myosin, light polypeptide 2, regulatory, cardiac, slow	6.6	3.80
6	AA234634_f_at	AA234634	CCAAT/enhancer binding protein (C/EBP), delta	6.2	4.35
7	rc_AA419011_at	AA419011	prostate androgen-regulated transcript 1	6.1	3.87
8	rc_N94303_at	N94303	ESTs	5.8	5.96
9	M20543_at	M20543	actin, alpha 1, skeletal muscle	5.5	3.20
10	rc_AA085943_s_at	AA085943	troponin T1, skeletal, slow	5.5	3.02
11	X06825_at	X06825	tropomyosin 2 (beta)	5.2	3.35
12	AB000584_at	AB000584	prostate differentiation factor	5.1	3.80
13	M19309_s_at	M19309	troponin T1, skeletal, slow	5.0	3.41
14	rc_AA040433_at	AA040433	DKFZP586N2124 protein	5.0	2.62
15	rc_N32748_at	N32748	ESTs	5.0	3.36
16	rc_AA227926_at	AA227926	ESTs	4.8	5.39
17	rc_AA457566_at	AA457566	ESTs	4.7	4.22
18	rc_AA026641_s_at	AA026641	secretory leukocyte protease inhibitor (antileukoprotease)	4.6	2.09
19	rc_AA053424_at	AA053424	serine/threonine protein kinase MASK	4.5	4.16
20	V00594_at	V00594	metallothionein 2A	4.5	3.71
21	rc_R16983_at	R16983	ESTs	4.5	3.23
22	U75272_s_at	U75272	progastricsin (pepsinogen C)	4.4	4.57
23	rc_T94447_s_at	T94447	cortic al thymocyte receptor (X. laevis CTX) like	4.4	3.50
24	U08021_at	U08021	nicotinamide N-methyltransferase	4.4	2.41
25	J03910_rna1_at	J03910	metallothionein 1G	4.3	2.79
26	rc_AA236545_at	AA236545	ESTs	4.2	2.41
27	rc_AA211443_at	AA211443	ESTs	4.2	4.49
28	rc_AA398908_at	AA398908	ESTs	4.2	2.64
29	X57129_at	X57129	H1 histone family, member 2	4.2	3.88
30	M21665_s_at	M21665	myosin, heavy polypeptide 7, cardiac muscle, beta	4.1	3.61
31	X65614_at	X65614	S100 calcium-binding protein P	4.1	4.03
32	rc_AA197112_r_at	AA197112	putative nuclear protein	4.1	3.07
33	M99487_at	M99487	folate hydrolase (prostate-specific membrane antigen) 1	4.0	2.65
34	X04201_at	X04201	neurotrophic tyrosine kinase, receptor, type 1	3.9	2.87
35	X05451_s_at	X05451	ESTs	3.9	3.26
36	rc_AA435720_i_at	AA435720	tubulin, alpha 2	3.9	2.20
37	rc_N92502_s_at	N92502	ESTs	3.8	3.11
38	L77701_at	L77701	COX17 (yeast) homolog, cytochrome c oxidase assembly protein	3.8	3.97
39	HG2157-HT2227_at	HG2157-HT222	ESTs	3.8	4.08
40	X76717_at	X76717	metallothionein 1L	3.8	5.82
41	HG1067-HT1067_r_a	HG1067-HT106	ESTs	3.7	3.02
42	rc_AA599331_at	AA599331	CGI-119 protein, uncharacterized bone marrow protein BM039	3.6	4.90
43	M20642_s_at	M20642	ESTs	3.6	3.48
44	rc_AA055163_at	AA055163	calsequestrin 2, cardiac muscle	3.6	3.66
45	rc_AA127946_at	AA127946	DKFZP586B2022 protein	3.6	4.40
46	rc_AA022886_at	AA022886	retinal degeneration B beta	3.6	3.51
47	rc_AA342337_at	AA342337	ESTs	3.5	2.57

Normal vs. BPH W/Symptoms Table TABLE 4

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Down-regulated	Affy element	GenBank ID	GenBank Name	Fold-change	t
48	X02544_at	X02544	orosomucoid 1	3.5	1.92
49	rc_T73433_s_at	T73433	angiotensinogen	3.5	3.10
50	M21494_at	M21494	creatine kinase, muscle	3.4	2.46
51	rc_AA488072_s_at	AA488072	cardiac ankyrin repeat protein	3.4	2.78
52	rc_AA293187_s_at	AA293187	B-cell CLL/lymphoma 3	3.4	1.62
53	rc_AA599522_r_at	AA599522	squamous cell carcinoma antigen recognised by T cells	3.4	3.03
54	rc_AA405488_at	AA405488	ESTs	3.4	2.57
55	rc_AA461453_at	AA461453	calcium binding protein Cab45 precursor,	3.4	3.10
56	rc_AA609006_at	AA609006	ESTs	3.4	2.30
57	rc_N24761_at	N24761	TU12B1-TY protein	3.4	3.89
58	rc_AA432162_at	AA432162	DKFZP586B2022 protein	3.4	2.78
59	X06256_at	X06256	integrin, alpha 5 (fibronectin receptor, alpha polypeptide)	3.4	4.51
60	rc_AA045825_at	AA045825	ESTs	3.3	3.90
61	rc_AA478778_at	AA478778	ESTs	3.3	4.37
62	rc_N80129_f_at	N80129	metallothionein 1L	3.2	3.60
63	rc_AA182030_at	AA182030	pyruvate dehydrogenase kinase, isoenzyme 4	3.2	3.72
64	rc_AA102489_at	AA102489	hypothetical protein FLJ10337	3.2	2.20
65	rc_R46074_at	R46074	transforming, acidic coiled-coil containing protein 2	3.2	3.38
66	rc_AA599522_f_at	AA599522	squamous cell carcinoma antigen recognised by T cells	3.2	2.36
67	rc_AA165313_at	AA165313	ESTs	3.2	2.76
68	rc_AA429636_at	AA429636	hexokinase 2	3.2	3.12
69	rc_R71792_s_at	R71792	thrombospondin 1	3.1	2.31
70	U05861_at	U05861	aldo-keto reductase family 1, member C1 (dihydrodiol dehydrogenase 1; 20-alpha (3-alpha)-hydroxysteroid dehydrogenase), aldo-keto reductase family 1, member C2 (dihydrodiol dehydrogenase 2; bile acid binding protein; 3-alpha hydroxysteroid dehydrogenase, type III)	3.1	2.62
71	rc_AA410311_at	AA410311	ESTs	3.1	3.52
72	rc_AA505136_at	AA505136	ESTs	3.1	3.00
73	rc_T68873_f_at	T68873	metallothionein 1L	3.0	3.18
74	X00371_rna1_at	X00371	myoglobin	3.0	2.18
75	rc_AA099820_at	AA099820	ESTs	3.0	3.08
76	rc_T90190_s_at	T90190	H1 histone family, member 2	3.0	3.48
77	rc_AA227936_f_at	AA227936	parathymosin	3.0	1.76
78	X90568_at	X90568	titin	3.0	2.83
79	rc_AA004699_at	AA004699	orphan G-protein coupled receptor	3.0	2.23
80	rc_F03969_at	F03969	ESTs	2.9	2.53
81	X93036_at	X93036	FXFD domain-containing ion transport regulator 3	2.9	2.91
82	rc_R91484_at	R91484	ESTs	2.9	6.43
83	rc_AA025370_at	AA025370	KIAA0872 protein	2.9	2.87
84	X51441_s_at	X51441	serum amyloid A1	2.9	1.78
85	X64177_f_at	X64177	metallothionein 1H	2.9	3.36
86	rc_AA255480_at	AA255480	ECSIT	2.9	2.38
87	rc_AA476944_at	AA476944	ESTs	2.8	4.26
88	U78294_at	U78294	arachidonate 15-lipoxygenase, second type	2.8	1.82
89	rc_AA045487_at	AA045487	ESTs	2.8	2.75
90	rc_N74291_at	N74291	ESTs	2.8	1.88
91	rc_N91973_at	N91973	hypothetical protein, three prime repair exonuclease 1	2.8	1.97

Normal vs. BPH W/Symptoms Table TABLE 4

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Down-regulated	Affy element	GenBank ID	GenBank Name	Fold-change	t
92	D81655_at	D81655	ESTs	2.8	1.89
93	U53225_at	U53225	sorting nexin 1	2.8	3.16
94	rc_H77597_f_at	H77597	metallothionein 1H	2.8	2.98
95	K02215_at	K02215	angiotensinogen	2.8	3.05
96	rc_AA464728_s_at	AA464728	ESTs	2.7	3.80
97	rc_W49708_at	W49708	ESTs	2.7	3.52
98	rc_AA453435_at	AA453435	ESTs	2.7	4.78
99	rc_D11824_at	D11824	ESTs	2.7	3.70
100	rc_T56281_f_at	T56281	RNA helicase-related protein	2.7	2.62
101	rc_AA182882_at	AA182882	titin-cap (telethonin)	2.7	1.85
102	rc_AA447522_at	AA447522	ESTs	2.7	3.27
103	rc_N26904_at	N26904	FK506 binding protein precursor	2.7	3.21
104	rc_AA131919_at	AA131919	putative type II membrane protein	2.7	4.15
105	rc_R89840_at	R89840	ESTs	2.7	2.23
106	rc_W31470_at	W31470	thyroid hormone receptor-associated protein, 95-kD subunit	2.7	2.85
107	rc_W92207_at	W92207	ESTs	2.7	4.07
108	U96094_at	U96094	sarcophilin	2.7	2.23
109	rc_W70131_at	W70131	ESTs	2.7	3.64
110	rc_AA435720_f_at	AA435720	tubulin, alpha 2	2.7	1.98
111	rc_AA284879_at	AA284879	ESTs	2.7	1.74
112	rc_H22453_at	H22453	ESTs	2.7	4.20
113	D14826_s_at	D14826	cAMP responsive element modulator	2.6	4.13
114	rc_N93798_at	N93798	protein tyrosine phosphatase type IVA, member 3	2.6	3.12
115	U41804_at	U41804	putative T1/ST2 receptor binding protein	2.6	4.37
116	rc_W20486_f_at	W20486	chromosome 21 open reading frame 56	2.6	2.74
117	rc_AA055768_at	AA055768	CGI-119 protein	2.6	2.13
118	rc_AA447977_s_at	AA447977	ESTs	2.6	3.22
119	AA380393_at	AA380393	SEC7 homolog	2.6	2.29
120	rc_N29568_at	N29568	thyroid hormone receptor-associated protein, 150 kDa subunit	2.6	2.46
121	rc_AA426374_f_at	AA426374	tubulin, alpha 2	2.6	3.20
122	rc_H94471_at	H94471	occludin	2.6	2.19
123	rc_AA252219_at	AA252219	ESTs	2.6	3.83
124	rc_AA402000_at	AA402000	ESTs	2.6	2.29
125	rc_Z38744_at	Z38744	putative gene product	2.6	4.18
126	AA045870_at	AA045870	ESTs	2.6	2.26
127	rc_R38678_at	R38678	ESTs	2.6	4.16
128	R39467_f_at	R39467	NEU1 protein	2.6	2.79
129	AA455001_s_at	AA455001	CGI-43 protein	2.6	5.34
130	rc_AA292328_at	AA292328	activating transcription factor 5	2.6	2.88
131	X57348_s_at	X57348	stratifin	2.6	2.48
132	rc_T95005_s_at	T95005	ESTs	2.5	3.30
133	AA410355_at	AA410355	ribosomal protein S6 kinase, 70kD, polypeptide 2	2.5	2.31
134	AA036900_at	AA036900	ESTs	2.5	2.45
135	rc_F02204_at	F02204	BAI1-associated protein 2	2.5	2.26
136	U26173_s_at	U26173	nuclear factor, interleukin 3 regulated	2.5	3.91
137	rc_AA477767_at	AA477767	ESTs	2.5	3.17
138	rc_AA504805_s_at	AA504805	interferon stimulated gene (20kD)	2.5	3.79
139	rc_R33627_i_at	R33627	ESTs	2.5	1.99

Normal vs. BPH W/Symptoms Table TABLE 4

Down-regulated	Affy element	GenBank ID	GenBank Name	Fold-change	t
140	rc_T40995_f_at	T40995	alcohol dehydrogenase 3 (class I), gamma polypeptide	2.5	2.15
141	rc_R00144_at	R00144	ESTs	2.5	2.69
142	U02020_at	U02020	pre-B-cell colony-enhancing factor	2.5	4.20
143	rc_AA287832_at	AA287832	ESTs	2.5	3.80
144	AA429539_f_at	AA429539	hypothetical protein	2.5	2.35
145	rc_H05084_at	H05084	GDP-mannose pyrophosphorylase B	2.5	2.23
146	rc_AA405616_at	AA405616	ESTs	2.5	3.33
147	AA455381_at	AA455381	aldehyde dehydrogenase 5 family, member A1 (succinate-semialdehyde dehydrogenase)	2.4	2.60
148	M13955_at	M13955	keratin 7	2.4	2.22
149	rc_AA180314_at	AA180314	ESTs	2.4	2.53
150	M37984_rna1_at	M37984	troponin C, slow	2.4	2.10
151	M61764_at	M61764	tubulin, gamma 1	2.4	3.48
152	rc_AA150920_at	AA150920	KIAA0539 gene product	2.4	4.11
153	X65965_s_at	X65965	superoxide dismutase 2, mitochondrial	2.4	2.37
154	X93510_at	X93510	LIM domain protein	2.4	2.39
155	rc_N48056_s_at	N48056	folate hydrolase (prostate-specific membrane antigen) 1	2.4	1.80
156	rc_N26713_s_at	N26713	ESTs	2.4	3.87
157	rc_AA282247_at	AA282247	ESTs	2.4	3.17
158	rc_D80617_at	D80617	KIAA0596 protein	2.4	2.02
159	rc_F02245_at	F02245	monoamine oxidase A	2.4	2.79
160	rc_R58878_at	R58878	ESTs	2.4	2.80
161	rc_W45531_at	W45531	ESTs	2.4	4.17
162	L25270_at	L25270	SMC (mouse) homolog, X chromosome	2.4	3.26
163	rc_W88568_at	W88568	glycogenin 2	2.4	1.90
164	rc_AA070752_s_at	AA070752	insulin receptor substrate 1	2.4	2.87
165	U24169_at	U24169	JTV1 gene, hypothetical protein PRO0992	2.4	3.41
166	rc_T15423_s_at	T15423	2',3'-cyclic nucleotide 3' phosphodiesterase	2.4	1.71
167	X78706_at	X78706	carnitine acetyltransferase	2.4	3.51
168	rc_T10695_i_at	T10695	enigma (LIM domain protein)	2.4	1.52
169	rc_AA430388_at	AA430388	HSPC160 protein	2.4	5.04
170	M68519_rna1_at	M68519	surfactant, pulmonary-associated protein A1	2.4	3.89
171	rc_AA421562_at	AA421562	anterior gradient 2 (Xenopus laevis) homolog	2.4	1.80
172	rc_T97243_at	T97243	prenyl protein protease RCE1	2.4	2.46
173	rc_T15409_f_at	T15409	ESTs	2.3	3.76
174	rc_T62918_at	T62918	ESTs	2.3	2.59
175	rc_R15108_at	R15108	ESTs	2.3	2.74
176	AA454908_s_at	AA454908	KIAA0144 gene product	2.3	2.77
177	rc_N64683_at	N64683	CGI-119 protein	2.3	2.27
178	rc_H99035_at	H99035	ESTs	2.3	4.34
179	Y08374_rna1_at	Y08374	chitinase 3-like 1 (cartilage glycoprotein-39)	2.3	2.94
180	rc_AA236241_at	AA236241	ESTs	2.3	1.57
181	U52969_at	U52969	Purkinje cell protein 4	2.3	3.49
182	rc_R11526_f_at	R11526	parathymosin	2.3	1.71
183	rc_T15850_f_at	T15850	ESTs	2.3	2.42
184	HG2259-HT2348_s_a	HG2259-HT234	tubulin, alpha 1 (testis specific), tubulin, alpha, ubiquitous	2.3	2.91
185	rc_H15143_s_at	H15143	ortholog of rat pippin	2.3	1.45
186	rc_AA101767_at	AA101767	ESTs	2.3	3.52

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Down-regulated	Affy element	GenBank ID	GenBank Name	Fold-change	t
187	rc_AA193197_at	AA193197	sarcomeric muscle protein	2.3	1.98
188	U03688_at	U03688	cytochrome P450, subfamily I (dioxin-inducible), polypeptide 1 (glaucoma 3, primary infantile)	2.3	2.97
189	rc_R37774_at	R37774	cytochrome P450 retinoid metabolizing protein	2.3	4.11
190	rc_H81413_f_at	H81413	high-mobility group (nonhistone chromosomal) protein isoforms I and Y	2.3	3.12
191	X16354_at	X16354	carcinoembryonic antigen-related cell adhesion molecule 1 (biliary glycoprotein)	2.3	2.54
192	rc_AA457235_at	AA457235	ESTs	2.3	2.25
193	D13643_at	D13643	KIAA0018 gene product	2.3	1.78
194	rc_N30856_at	N30856	solute carrier family 19 (thiamine transporter), member 2	2.3	3.45
195	M26311_s_at	M26311	S100 calcium-binding protein A9 (calgranulin B)	2.3	2.37
196	rc_Z40556_at	Z40556	CGI-96 protein	2.3	2.39
197	rc_N79070_at	N79070	ESTs	2.3	1.43
198	Z69881_at	Z69881	ATPase, Ca <sup>++</sup> transporting, ubiquitous	2.3	3.87
199	rc_D60755_s_at	D60755	ESTs	2.3	2.30
200	rc_N94424_at	N94424	retinoic acid receptor responder (tazarotene induced) 1	2.2	1.09

Table 5

Up-regulated genes		Down-regulated genes	
Cluster	Fragment Name	Cluster	Fragment Name
1	rc_AA256268_at	1	rc_AA227926_at
1	rc_AA188981_at	1	rc_AA398908_at
1	rc_AA173223_at	1	L77701_at
1	rc_AA216589_at	1	rc_AA599331_at
1	rc_AA234095_at	1	AA455001_s_at
1	rc_H17550_at	3	rc_AA022886_at
1	AA308998_at	3	rc_N24761_at
1	rc_AA488432_at	3	X06256_at
1	rc_AA427890_at	4	HG1067-HT1067_r_at
1	rc_N91887_s_at	4	rc_AA127946_at
1	rc_AA045481_at	4	rc_AA405488_at
3	rc_T23622_at	5	AA234634_f_at
3	rc_T23490_s_at	5	X65614_at
3	rc_AA620289_at	5	rc_T73433_s_at
4	rc_H05704_r_at	5	rc_R91484_at
4	rc_AA436616_at	5	rc_N93798_at
4	rc_AA456147_at	6	rc_N94303_at
4	rc_f09748_s_at, AA495865_at	6	AB000584_at
4	rc_AA598982_s_at	6	rc_AA410311_at
4	HG3543-HT3739_at	6	rc_F02245_at
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5	U62015_at	7	rc_N32748_at
5	rc_F13763_at	7	V00594_at
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6	X52541_at	7	rc_AA182030_at
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7	rc_n22006_s_at	7	X64177_f_at, rc_H77597_f_at
7	rc_R42424_at	7	rc_AA101767_at

Table 6

	Prostatic tissues	Cell Line			
		BRF-55T	PZ-HPV7	BPH-1	LNCaP
Up-regulated genes	61	33	22	20	20
Down-regulated genes	43	31	28	30	33
Total	104	64	50	50	53

## WE CLAIM:

1. A method of screening for or identifying an agent that modulates the onset or progression of benign prostatic hyperplasia (BPH), comprising:

5 (a) preparing a first gene expression profile of BPH cells or BPH-like cell population;

(b) exposing the cells to the agent

(c) preparing second gene expression profile of the agent exposed cells ;  
and

(d) comparing the first and second gene expression profiles.

10

2. A method of claim 1, wherein the gene expression profile comprises the expression levels for one or more genes that are differentially regulated in BPH cells compared to normal prostate cells.

15

3. A method of claim 1, wherein the agent modulates the expression levels for one or more genes in the BPH cells to levels close or similar to the expression level found in normal prostate cells .

20

4. A method of claim 1, wherein the gene expression profile comprises the expression levels in BPH cells for one or more genes in Tables 1-5.

5. A method of claim 1, wherein the gene expression profile comprises the expression levels in BPH cells for one or more genes in Table 5.

25

6. A method of any one of claims 1-5, wherein the BPH cell is selected from the group consisting of prostate cells from a BPH patient, a cell line in Table 6 and a derivative thereof.

7. A method of any one of claims 2-5 , wherein the expression levels are for two or more genes .

8. A method of diagnosing the onset or progression of benign prostatic hyperplasia (BPH) in a subject comprising:

(a) detecting the expression levels of one or more genes in prostate cells from the subject that are differentially regulated compared to normal prostate cells.

9. A method of claim 8, wherein the expression levels are for one or more genes in Tables 1-5.

10. A method of claim 8, wherein the expression levels are for two or more genes in Tables 1-5.

11. A method of claim 8, wherein the expression levels are for one or more genes in Table 5.

12. A method of claim 8, wherein the expression levels are for two or more genes in Table 5.

13. A method of differentiating benign prostatic hyperplasia (BPH) from prostate cancer in a subject comprising:

(a) detecting the expression levels of one or more genes in prostate cells from the subject that are indicative of BPH rather than prostate cancer.

14. A method of claim 13, wherein the expression levels are for one or more genes in Tables 1-5.

15. A method of claim 13, wherein the expression levels are for two or more genes in Tables 1-5.

16. A method of claim 13, wherein the expression levels are for one or more genes  
5 in Table 5.

17. A method of claim 13, wherein the expression levels are for two or more genes in Table 5.

10 18. A set of oligonucleotide probes, wherein each of the probes specifically hybridizes to a gene in Tables 1-5.

19. A set of oligonucleotide probes, wherein each of the probes specifically hybridizes to a gene in Table 5.

15

20. A set of oligonucleotide probes of claim 18, wherein the set specifically hybridizes to nearly all the genes in Tables 1-5.

21. A set of oligonucleotide probes of claim 18, wherein the set specifically  
20 hybridizes to nearly all the genes in Table 5.

22. A set of oligonucleotide probes of any one of claims 18-21, wherein the probes are attached to a solid support.

25 23. A set of oligonucleotide probes of claim 22, wherein the solid support is selected from the group consisting of a membrane, a glass support and a silicon support.

24. A solid support onto which two or more oligonucleotide probes have been attached, wherein each of the probes specifically hybridizes to a gene in Tables 1-5.

25. A solid support of claim 24, wherein the probes specifically hybridize to  
5 nearly all of the genes in Tables 1-5

26. A solid support onto which two or more oligonucleotide probes have been attached, wherein the probes specifically hybridize to a gene in Table 5.

10 27. A solid support of claim 26, wherein the probes specifically hybridize to nearly all of the genes in Table 5.

28. A solid support of any one of claims 24-27, wherein the solid support is an array comprising at least 10 different oligonucleotides in discrete locations per square  
15 centimeter.

29. A solid support of claim 28, wherein the array comprises at least 100 different oligonucleotides in discrete locations per square centimeter.

20 30. A solid support of claim 28, wherein the array comprises at least 1000 different oligonucleotides in discrete locations per square centimeter.

31. A solid support of claim 28, wherein the array comprises at least 10,000 different oligonucleotides in discrete locations per square centimeter.

25

32. A computer system comprising:

(a) a database containing information identifying the expression level in benign prostatic hyperplasia (BPH) tissue or cells of a set of genes comprising at least two genes in Tables 1-5; and

(b) a user interface to view the information.

5

33. A computer system of claim 32, wherein the set of genes comprises at least two genes in Table 5.

34. A computer system of claim 32, wherein the database further comprises  
10 sequence information for the genes.

35. A computer system of claim 32, wherein the database further comprises information identifying the expression level for the set of genes in normal prostate tissue or cells.

15

36. A computer system of claim 32, wherein the database further comprises information identifying the expression level of the set of genes in prostate cancer tissue or cells.

20 37. A computer system of claim 32, further comprising records including descriptive information from an external database, which information correlates said genes to records in the external database.

38. A computer system of claim 37, wherein the external database is GenBank.

25

39. A method of using a computer system of claim 32 to present information identifying the expression levels in a tissue or cells of at least one gene in Tables 1-5, comprising the step of:

(a) comparing the expression level of at least one gene in Tables 1-5 in the tissue or cells to the level of expression of the gene in the database.

40. A method of claim 39, wherein the expression levels of at least two genes are  
5 compared.

41. A method of claim 39, wherein the expression levels of at least five genes are compared.

10 42. A method of claim 39, wherein the expression levels of at least ten genes are compared.

43. A method of claim 39, further comprising the step of displaying the expression levels of at least one gene in the tissue or cell sample compared to the expression level in  
15 BPH.

44. A method of monitoring the treatment of a patient with benign prostatic hyperplasia (BPH), comprising:

- (a) administering a pharmaceutical composition to the patient;
- 20 (b) preparing a gene expression profile from a cell or tissue sample from the patient; and
- (c) comparing the patient gene expression profile to a gene expression profile from a normal prostate cells, or a BPH tissue or cell sample without treatment.

25 45. A method of claim 44, wherein the gene expression profile comprises the expression levels for one or more genes in Tables 1-5.

46. A method of claim 44, wherein the gene expression profile comprises the expression levels for one or more genes in Table 5.

47. A method of claim 45 or 46, wherein the expression levels are for two or more  
5 genes.

48. A method of any one of claims 1, 8, 12, 38 or 43, wherein the gene expression profile or gene expression level is detected by branched DNA (bDNA) method.

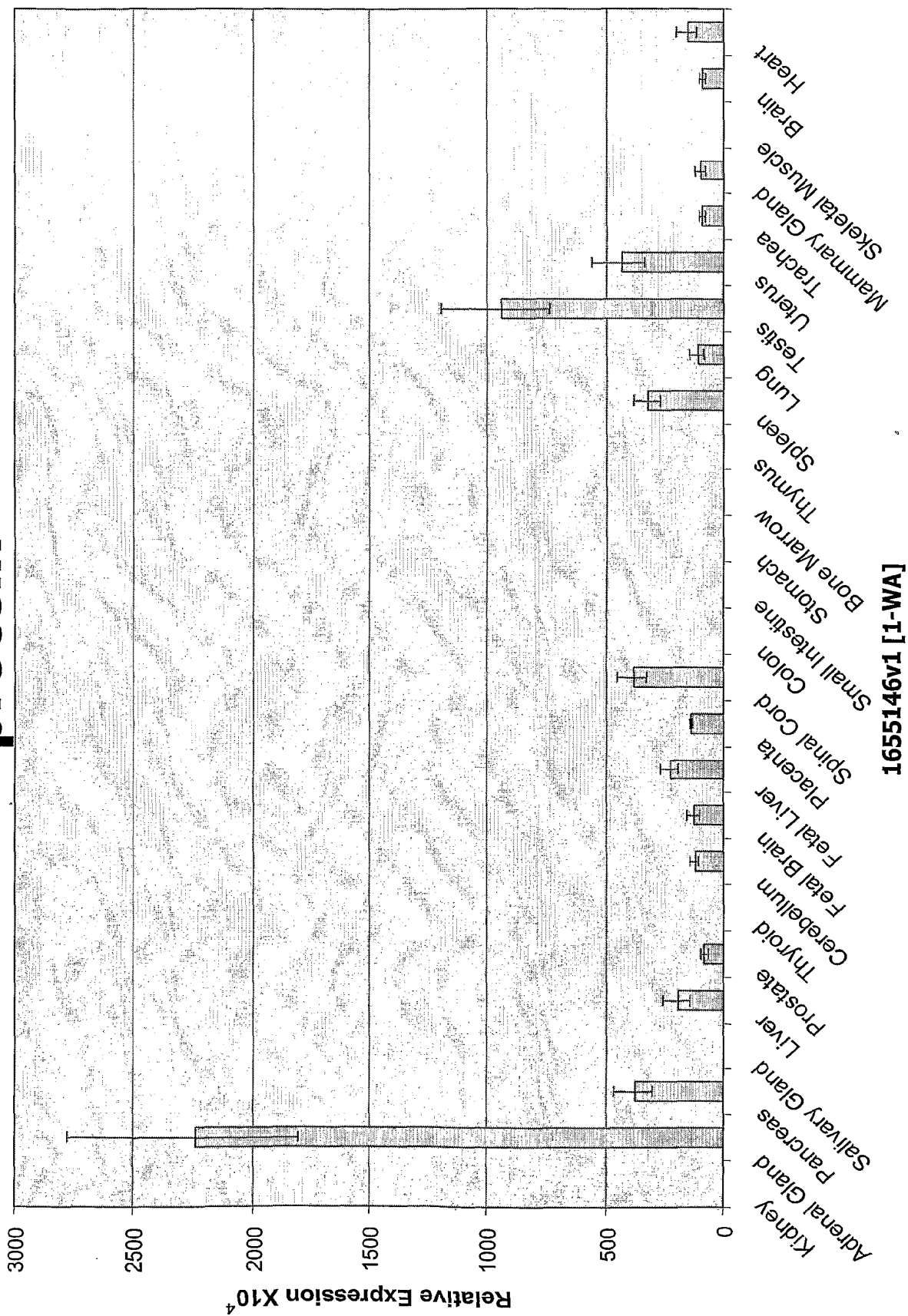
10 49. A computer readable storage medium storing a computer program for implementing an algorithm executing method of analyzing gene expression results; said method comprising:

- (a) converting the mean expression value for each gene to 0; and
- (b) converting the high and low expression values to 1 and -1,  
15 respectively.

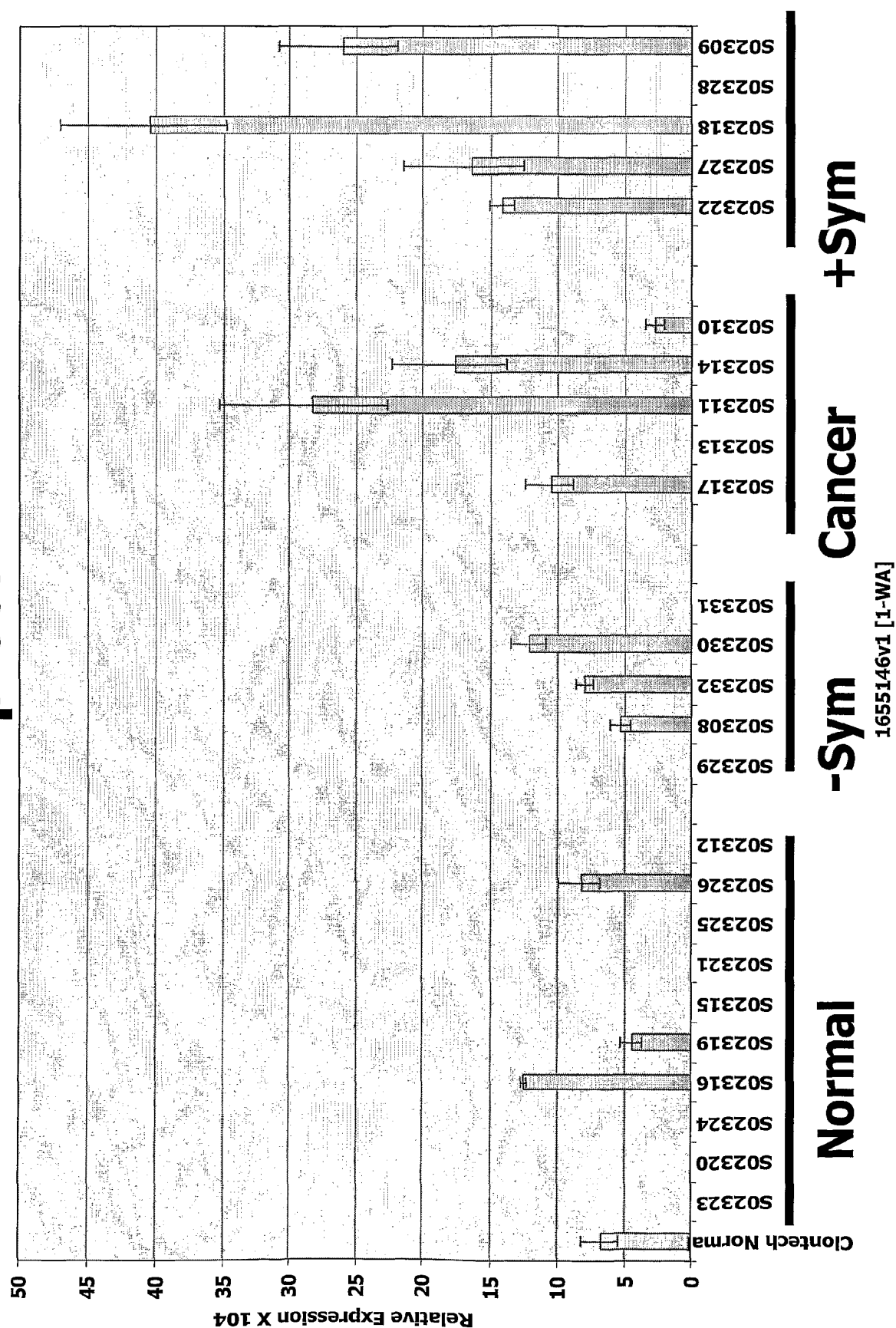
50. The medium of claim 49, wherein the method further comprises the step of:

- (c) clustering the converted expression values to identify sets of genes with similar expression patterns.

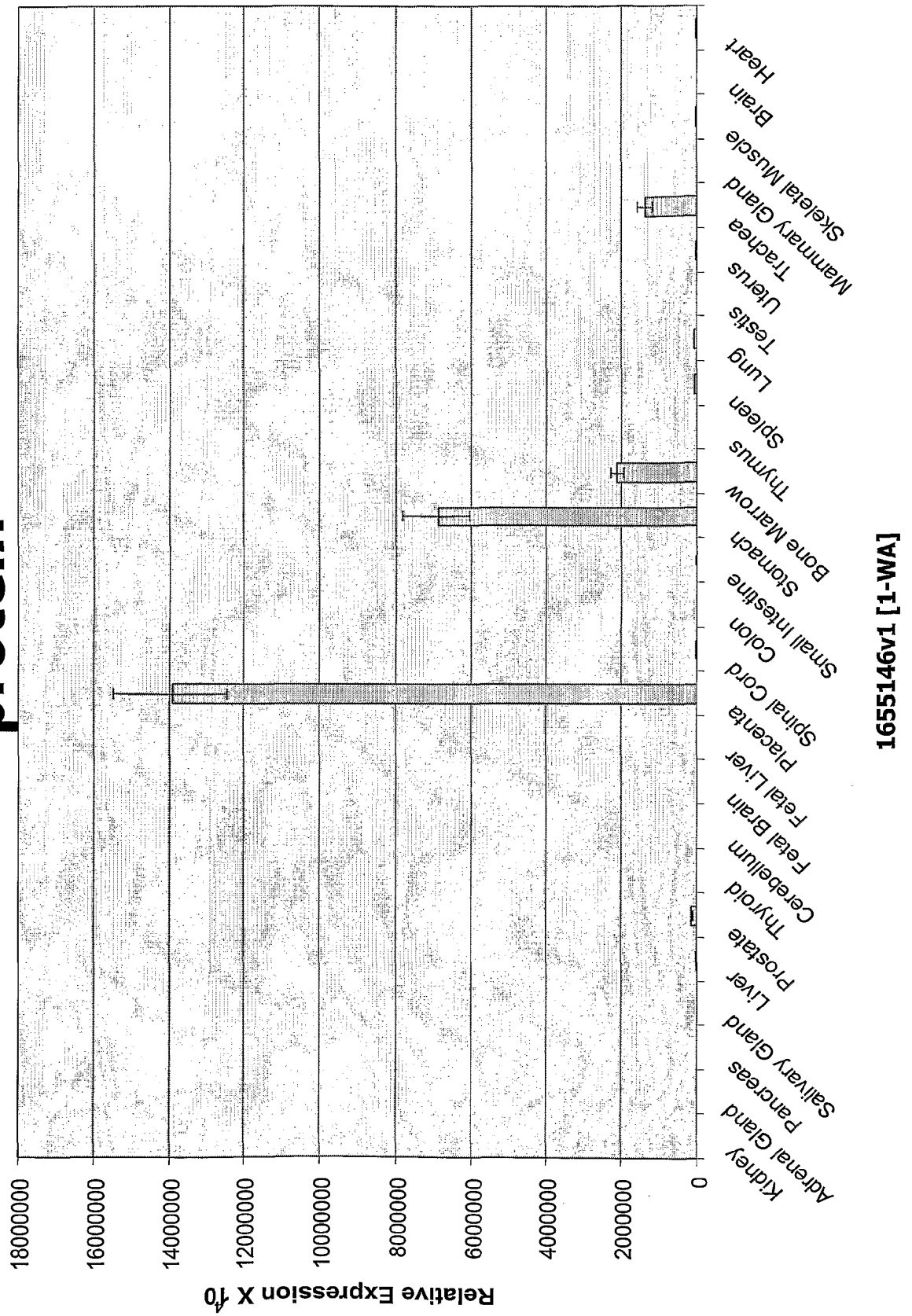
**Figure 1: N91971, cellular retinol binding protein**



# Figure 2: N91971, cellular retinol binding protein



**Figure 3: X65614, S100-calcium binding protein**



# Figure 4: X65614, S100-calcium binding protein

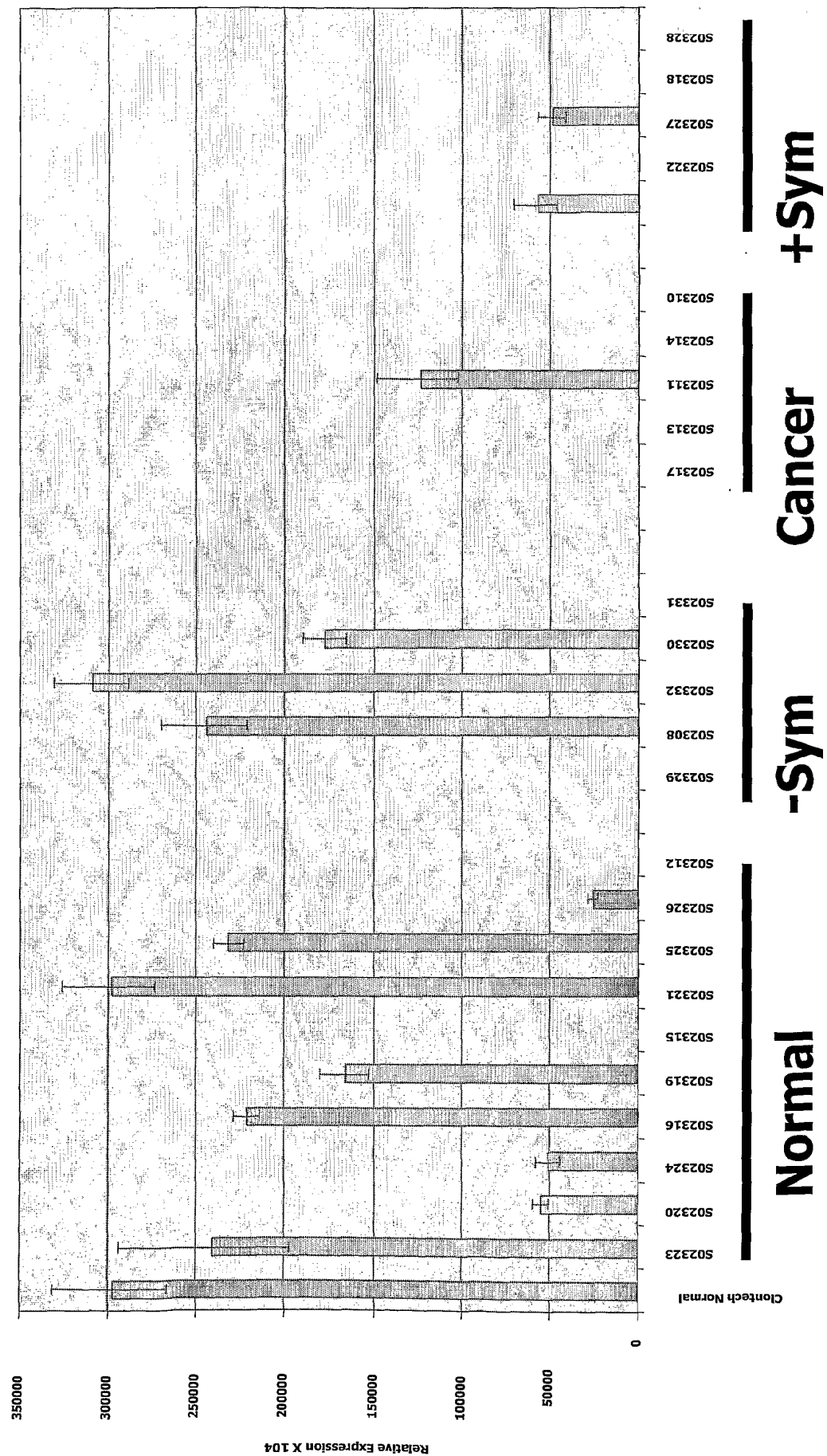


Figure 5: M99487, PSMA

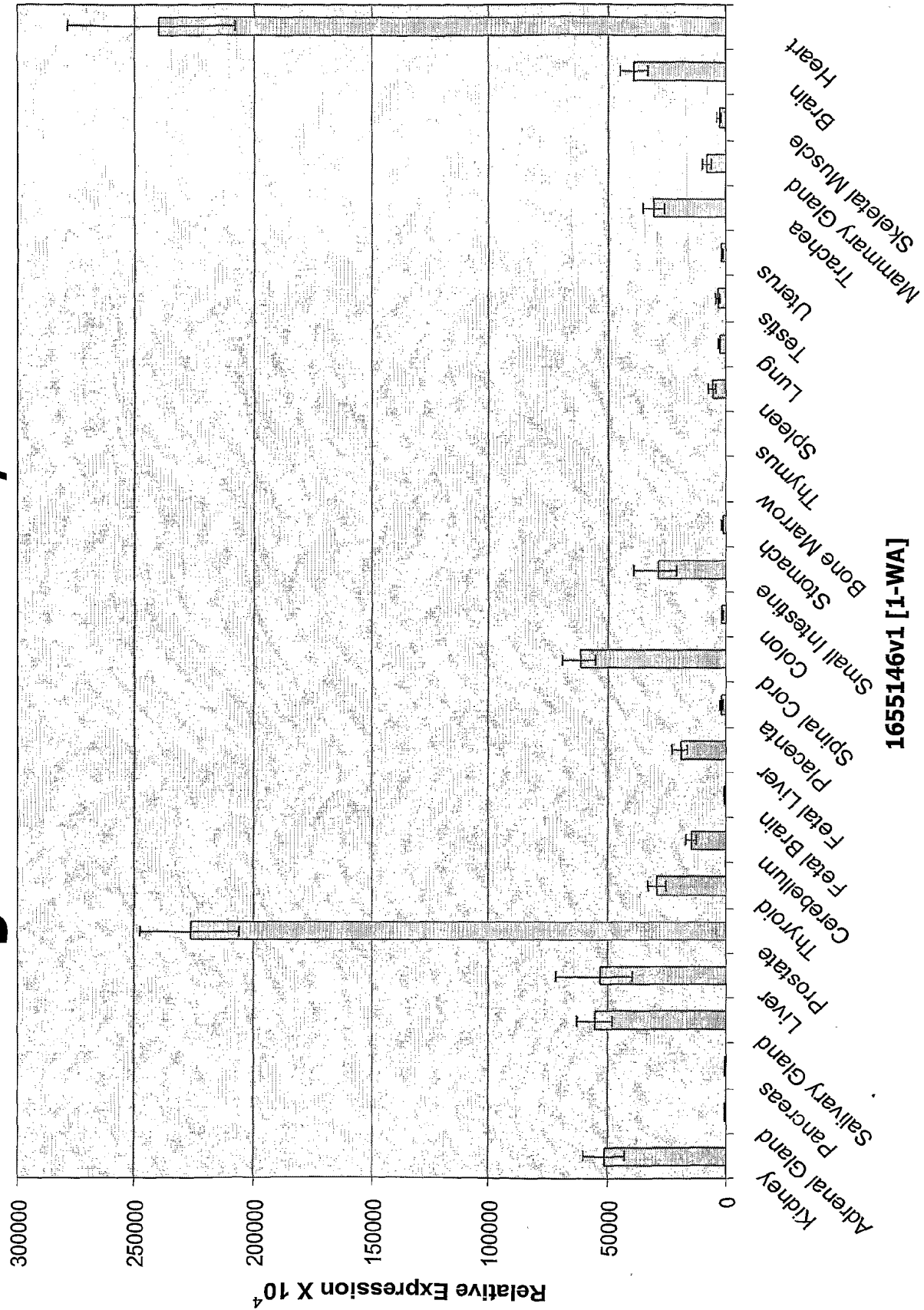
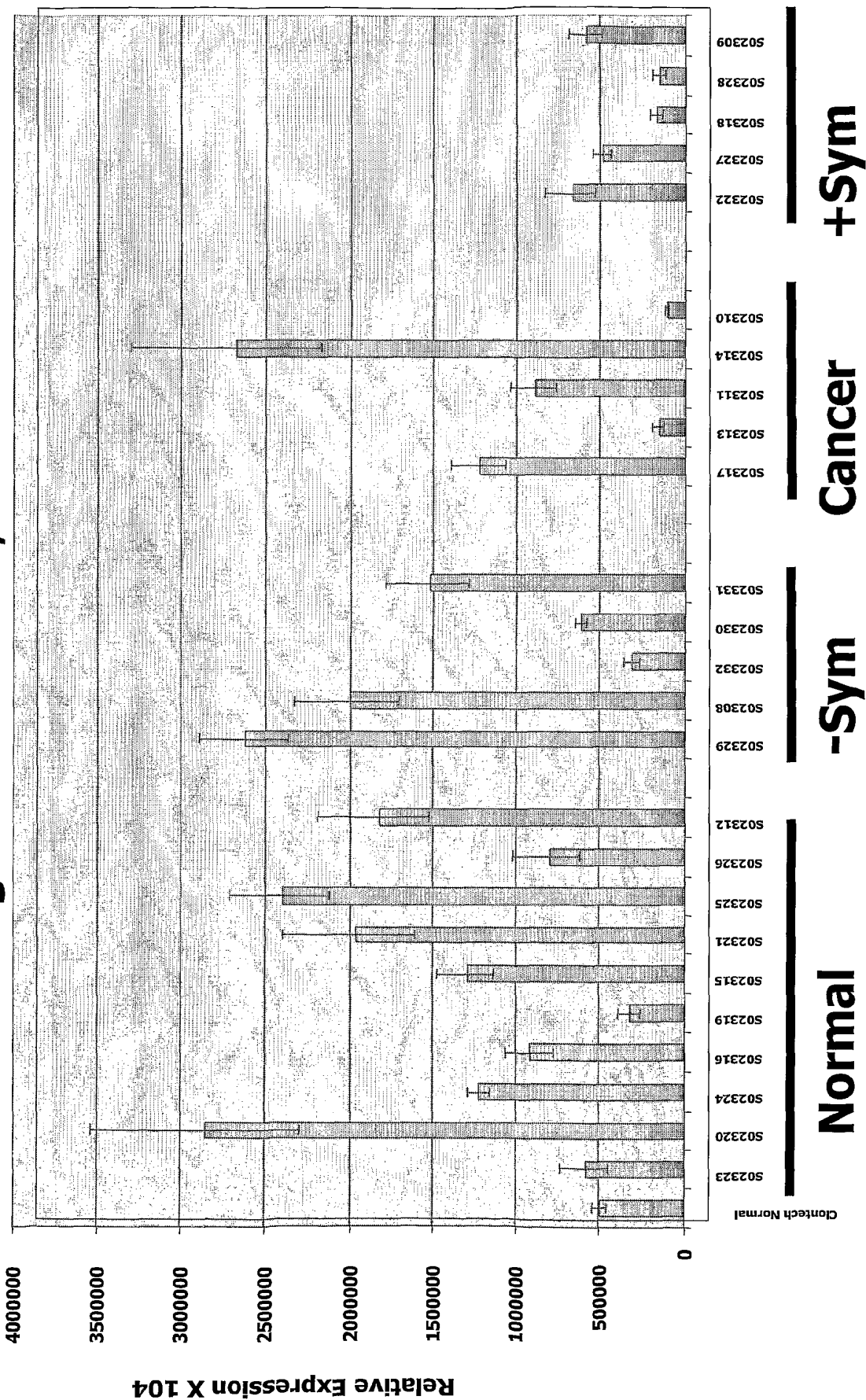


Figure 6: M99487, PSMA



1655146v1 [1-WA]

## SEQUENCE LISTING

<110> Munger, William E.  
 Kulkarni, Prakash  
 Getzenberg, Robert H.  
 Waga, Iwao  
 Yamamoto, Jun

<120> Identifying Drugs for and Diagnosis of Benign Prostatic  
 Hyperplasia Using Gene Expression Profiles

<130> 44921-5029-WO

<140>

<141>

<150> US 60/223,323

<151> 2000-08-07

<150> US 09/873,319

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 gagatgggtt ttcactttca acatgctgca tagcatctga ttttctgagc catcttgagg 240  
 aatggagctt ttccctaagt cattgaatgt ggtcaaagct atctacaaag cagagacagt 300  
 aggtctcttg tgaatcagtt tgggaaattc acaattaagc agtctcaggg agtgaaattc 360  
 cggggtctga tgagactgtg gaaaccatgt ggtactgtag ggagagcaca ggtttggatg 420  
 ccagacaaat atctaaatct aaccctaata cactgcttat aagcttagtg attgttgac 480  
 aagttgttta gcttctctga gcttagatac ctactgtaa aatgggaata atacctctt 540  
 ttagtg 546

<210> 19  
 <211> 353  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA043777

<220>  
 <221> unsure  
 <222> (1)..(353)  
 <223> n = a or c or g or t

```

<400> 19
gaagttataa aagcttggtt ttctttatta gaatactttt ttcaattctg atttgtcaca 60
atntagattc tttttctaag aataagcaga aatttacaaa atttaatttt tatttatata 120
ttcatccgtt caatacacat ttcaagaaag ctgtattgna ccccttnnag tnggtaagtt 180
ccagggccaa agaaccacaaa taaatccaag gagagagacc aacaaatgta tatttataac 240
acagagtaat aaaacacaaa taaatgtgga gttatttaag catgtaagat ggtacatgct 300
ctaccaaggt atggggggctt ctctaagaca caagatcaga tttaaagtctt gaa 353

```

```

<210> 20
<211> 382
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. AA044219

```

```

<220>
<221> unsure
<222> (1)..(382)
<223> n = a or c or g or t

```

```

<400> 20
ttgcggggaa tcaggtaggg gcctttattg gccagcacac atctacctcc tggcatctgt 60
cacaagcatt tgcaggagta ggcgggccct tcctctccat gtccccatcc ccaacctgag 120
atgcgggagg gcctgggggc tcagagggaa gaactgaggc aagaagcccc ggtgatccag 180
tcagaggatt gggcagcctg acctcggggt ggggagccag cactngacaa caaggaggga 240
ggggcacagg agggctcccc gaggtttggt ccgggagggg gaggaaaact gccccctgcn 300
ctgtcaatct ctgcaatgtg ccgagcccca gtccttgan tccctcagtg cctttggggc 360
tggatgctca ganagcagtt ga 382

```

```

<210> 21
<211> 428
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. AA045481

```

```

<220>
<221> unsure
<222> (1)..(428)
<223> n = a or c or g or t

```

```

<400> 21
tttttttcag taatacagat gtctatttta ttaaaaaagt tacaaacagg tggactgcag 60
ggctgtctta caaaatgaca agaatgaaat ctattggaaa aattttactt ttacaaatct 120
ttataggtaa ttgttcaatg tttgtacttg ttatttgaga ttttaccttt cactgataaa 180
gttacagtac attagatcca tgataatagg ttacattatt ttatttgcag agccctactg 240
cagtgatattg aacaactcct aaatagatgc cataataaag acaagacata tattgcattt 300
aatattaatt tattatccta ataagcaaca tgcaatctat tgaggaagct aaaataactt 360
ttgggtcccct ttcttaaaat gtgctggaga aaccaccctt aaaatcactt tcccccgat 420
tcnngcga 428

```

```

<210> 22
<211> 328
<212> DNA

```

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA045487

<400> 22

```

ggaaagcatt ttcaaacttt atttacaact gtcacagtga caaaaagtag tttggaaaaa 60
aaaaaatgct agtttctccc tgagcctcaa aaaagaacag atagaagtta caggagggttc 120
atctcacaaac aggcattttt actgaaatac taggaatttt ttcaatacaa tcagtttagaa 180
atacacacaa attacttgaa aaaaaaaaaa agaggaggcc agataggagc tcagccactt 240
gtccaagagc agctgggtcc ccccgagcagg ctccaccgct gagggtcctg acattagctg 300
tcagcccctg gcctgctcag actggcaa                                     328

```

<210> 23

<211> 402

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA045503

<400> 23

```

ctgtgagact gtccttttatt gtgtatacag gttccagcgt cagggctctc ccacggcccc 60
ctccccagtc ctcccccaag ggcccagagt ggtgggagtg agaggccacc ctaaggcaca 120
ctgaccagag aggcattggag ggaggaggct gacttgccct ggggacctt gctaactgag 180
accaccctt cccctccacc ctgcttctgt atgtgggaga cgaaaccaag agtcaactggg 240
ggcagcagggc atttcccagg gttaaggctg atggaaggct cctatcccag atgggagatg 300
ggggcttttc ctatgactcc ccccatcccc cagctggaag acgtggggag ggggtgcatag 360
ccttagagag gtagaatgag gggaaatact cctcagtgcc ca                                     402

```

<210> 24

<211> 437

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA045825

<220>

<221> unsure

<222> (1)..(437)

<223> n = a or c or g or t

<400> 24

```

cagtgtagac cgtcttttatt ggcagggtgtt aagagtgcaa aatatcaaca aaccagggg 60
aatacgcaag ggggtgggag tatggctccc ctaccccatg tgagagccct gtaaccaagc 120
cagtggggtg ggaacgttga ctgactgtg gcaaattcag gctcagcacc ttccaaagaa 180
caagctccca ggcaggaggc ctcccttgcaa cacaaggggg aaaggagtgg caccctggaa 240
gggcctgggc tgcgaccac cctgggctgc ttggctcctg tatactgcc acctcaacc 300
ctcaagagga aggttcaca gctgggggta tgtagtctag agaaccggg ctaaaccag 360
ccctcccaa acccaggtta tctgectcgg gcctcagttt ccctcctccc agtgattacc 420
caagttgggc ccatcag                                     437

```

<210> 25

<211> 397

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA045870

<220>

<221> unsure

<222> (1)..(397)

<223> n = a or c or g or t

<400> 25

```
gttttagagtc taaaactaaa acctaatacat ttngtcacag tgtaaaaaca aatggaaata 60
acagctcaaaa tcttcaaaaat attactatag cattatgttt aaaataaatct acaacaaaaa 120
tgtaccathtt tcaagcagta ctacattagg agcccttttta tagaaaaataa tttctttcttt 180
acccccgttc cagtgtgaat ctagtattct gttaacathtt gtgtggcatt tggagtttgt 240
catccccatt gaagggagag ccttctcaga catgaagcaa gggaaacata ctgaatagtt 300
ttacacaaat ttgatctggc ttccatttgn ccccttcatt tcccaaattgt ttaaantgta 360
ttnggatttg ggattctcaa atgggtataag ttggcct 397
```

<210> 26

<211> 564

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA046426

<220>

<221> unsure

<222> (1)..(564)

<223> n = a or c or g or t

<400> 26

```
ttttttnttt tttcacttta tcatttactt tttatttgtt tgcttgaagt acctatgtaa 60
tgcaagtatg tactgtacta aaatacctat atttccaaat aacatatgtg gtgtagccca 120
cagtctctgc agaagcatca tgagtaacct gtgccttttac actttacaat ccggttattgg 180
ttgctgttaa aagtatgata acagatgaag aaaaaaaaaac taagtatgaa tacacttttc 240
caaacacgca catacacagc ttacaatgga atcccaatgg aaataagtga caacatctga 300
tgtagaatct ataaaatgta gactctgcaa taaaaagcca aaggacgtaa aaatatattt 360
taactttaaa aataacttag ttacagtaat actttgcctg tgtcttacca acatgtagct 420
gacagtcaaaa attttgcaat atagatataa tatataggga tatataagaa ctacaagaaa 480
atccccaaaa occataaagt tcaaattgtg aacagaaaag ttttaacctgg agattcgcta 540
tggtgancta gccatathtt gaag 564
```

<210> 27

<211> 560

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA046840

<220>

<221> unsure

<222> (1)..(560)

<223> n = a or c or g or t

&lt;400&gt; 27

```

tacaaatact gtaaaaatta atataaaaaa gtgagcatgc tcagtctttt cctcttatct 60
acaatacaaa ggggtttgtct gaaaagtctg gttttttttc tttttacaaa tgtaccttag 120
ctgcatcaac aggagtaaga ttagaataaa gctaccatta caaaaataat ttaagggaaa 180
ataaacacgt ttagcttctc tcgcagttta gtggtggtta gtccaggctg tagcttcttt 240
gcgctcctat gtcccaagaa actgcagcgg gcacccggcg gctctggctg cgcagggcag 300
ggcgcgctcc gctccggggc gtcgggtctg aggtatgggt cgttgctgag tctctccgcg 360
cccggcgcg cgttaccggc agtctgctgt cccggcggcc ggcagaaggc cgggctgggc 420
agctgcttga agaactgccg gagggccagg tccgcgctga ntgctccacg cgctggtgca 480
gttctcgttt cagcgacagc tcacaacttt gtgcantcct gggtgcgcg cttggcttgt 540
ggggtttgcn acgggatggt                                     560

```

&lt;210&gt; 28

&lt;211&gt; 464

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA047151

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1) .. (464)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 28

```

agaaaaacca ccatcggtgc acgtcgacga tgccaaatta tgttagcgtg acaganaaca 60
ccgtggggga ggaaggcagc agctgaagaa aaaagctcaa atgatctagt cactttcgat 120
actgtacttc agatgcgaaa tggatattcn gagtggaac ctgacaaagt gcgcctgctt 180
tgatgtgaac tggatatagac aatgaccagt ggctgggtca gtgggatgtc tctctgtgag 240
cacaaaggct tatcaaatga cactaaagat aagttcaaca accatcacat tgggaaggag 300
aaaggccgaa catttcatgt ttggccgggc atgtgagtg acaagatgga aagagcgatt 360
ggagcatcct ggtataatta cccccattgt gctcttaatg gaaatttcaa aggacgggag 420
tattctgttg gttggtgtcc aggtttgtgg cactgttcca agag                                     464

```

&lt;210&gt; 29

&lt;211&gt; 413

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA047880

&lt;400&gt; 29

```

tacagagaat ataaaaatac attcacttta ttttagaaaa atgaagactc atagagtaag 60
cttatcacia actggcctat taggagtcac agaattcaca ggaaacaatt tctgaagacc 120
agggtgcctgc tgccacctct ccaagcaggc cagagtccag tagagaatgc gattcaggaa 180
gatggctcct cagagggcag ggagggttagc tacggaggcc gctcacgtgg aaatgtccag 240
tgaaccaatg ccaaggaaga agataaaatt ctctggggct gaccacaaca gtgggggtgg 300
ataaagacaa accacttgcc tgtacttctc atcttctatt tgttcatttc actgctggaa 360
ggtgacctct tttcccctaa tcttctttca acccagagag ttttaagtct ctc                                     413

```

&lt;210&gt; 30

&lt;211&gt; 431

&lt;212&gt; DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA053424

<220>

<221> unsure

<222> (1)..(431)

<223> n = a or c or g or t

<400> 30

```

tttgagcttt cagattttgct tttattggta gggaaattcc agagtgggga gccacccagg 60
aggagacagg ggtgccgagg cttctgggag tctggaagct cccggatgga gaggcttaca 120
gccccagcct tccccagcag gagcacaggc aggggactgg ccaagtctgt cagctcagag 180
caggaccggc ttcagggcct gacttcggtc tcctcttgac ccgccccgga ggcttgtggg 240
gggctctgtg tttgcagctc tcctgaacag agctagatga ggggtgggagg cccccgttgg 300
ctcacacagt ggatgctacc atctccggcc tcttggatgt ggagctctgt gccagagtca 360
acagtctcca ggggtgggccg gaagtgttg taggcgntct caaggccgaa atctgctctt 420
cctcagattc t                                     431

```

<210> 31

<211> 451

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA055163

<400> 31

```

tttttcaaaa tatgagttta atgacagaat tagttagcta gtattccaca aaaagtattg 60
ctctattttc aaaaaatttg cacagtgtct tacacatgtg ctaaaagatt gagaaaataa 120
attagaaaat tatactgcac acttaacact aaatctacca agcacaatgt aactttttaga 180
cagctcagaa ggcacttttg gatttttttt tttttcagtg cctcagggat cagtatgaac 240
tccaattatt gttgcccttg ccaattgttg gagtactgat aactggagag ttaattgact 300
gctggataaa gcaatcttta atctaaatgg ggaaggctca ctagcagcta cagaggaagg 360
gggtattcag atcccagctt aaggctagga agccagctga cccaatcaga gacatgaacc 420
catcagaaaa atgtaaaagt tttcatcttt c                                     451

```

<210> 32

<211> 354

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA055768

<400> 32

```

tttttttttt tctgttcaaa aaagggtttta tccaaaaaag ttaatcaaga caagcaacag 60
atactgcaaa gcattatata cagcaccata gtccaggggc caaagaaatc aggaggggct 120
gggcagtaga ggaattccat atattaatga atgtgagatt aagtatagag tgaagacatt 180
aacacacaat ttctaatttc tgtaggcag aatgctcccc taccctgatg ccacagcctt 240
tcacgtttcc taaaccctag taacctctga tctccatctg cctcatcaac acgtcaccac 300
cctttgctct tcttccaatt tagtcacatg ttgggctgaa tttatttcca ctcc       354

```

<210> 33

<211> 610

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA056121

<220>

<221> unsure

<222> (1)..(610)

<223> n = a or c or g or t

<400> 33

```
ctccccctcc ctgctccaag ccggagggtt cctgagggtga cagcgccctgc aactgaaatt 60
tcagcagcgg gagaagatgg acaagagaaa gctcggggcga cggccatctt catccgataa 120
gaaagatggtt aaatgcaaaa ccagaggatg tccatgttca atcaccactg tccaaattca 180
gaagctcaga acgctggact ctccctttgc agtgggaaag aagcctaagg aataaagtca 240
tctctctaga ccataaaaaat aaaaaacata tccgagggtg tcctgttact tccaagtcac 300
caccagaaag gcaactcaaa gttatgttga cgaatgtcct atggacggat ttaggacgaa 360
aattcagaaa gaccctacct agaaacgatg ctaatttatg tgatgccaac aaggtgcaat 420
cagactcatt gccttcgaca tctgttgaca gcctagagac atgtcaaaaa ttagaacctc 480
ttcgccaaag ccttaattta tctgaaagga tnccagagtt atattgacga atgtctggga 540
acgggttagg aagaaatcct aaggnccac ctgtactgag ggaattggtg ttcagcaant 600
gcatcagggg
```

<210> 34

<211> 404

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA057195

<220>

<221> unsure

<222> (1)..(404)

<223> n = a or c or g or t

<400> 34

```
agaaaaacca agtgtcttta ttctcgcac gttagtatg gcggtgggag gcgcgcgcgg 60
gggagcctgg agcccaggga atcgacctgg agggccagtn gngggancgg aggggtgcgag 120
gntcggctcc tccgcagccg gccctggagg ggttcttggg ggatcgcgcc aggccaaaag 180
tctgcatggg cggccccgag cctccctgag ccggcgcgcc ccgggnttng ggagaggccn 240
ctctgnncgc ggtgccgntg cggggccggg tgcggcgctc gccaaggggc taagggtgcc 300
cgtctcaggc gagaccccag gaggccgcgc ccccgctgt ctcttcagcc gacgtagaca 360
cgtngggccg ggaaccccag tcttaacgcg tgttcaagct ctgg 404
```

<210> 35

<211> 491

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA057829

<220>

<221> unsure

<222> (1)..(491)

<223> n = a or c or g or t

<400> 35

```
cacggccagc ctctcctgca gctgcgcgtn gctcacctcg ctctggcccc tgggtgccgtc 60
cacctccagg gtggcctcac cgtccctcag cgagacgggtg accacgtgct cttggccgtc 120
gcagacttga tctccattag ggccaaggcg tatgctccac ggccaggacc accagctgct 180
tcttgagttt cttcgtggag tgatagtcta ccagtgccac agagagaggc acggcacgga 240
ggtcggggggc ccagangcgc aaacaagcac gcctgtgtct gcggctgggc ggattgtgaa 300
gccacgactt ctacttccca ggttgattca gtcccgcgt ccagaagggg tccgcatgta 360
gtccaggctg tagaaggcga agcttncccc ggggttagaa agaagcctct ctccgtcacc 420
gagaagcact gcatcctcgt gttnatattca ccgttttcct ggatgggtggg gtcttctccg 480
ttcagccagt t 491
```

<210> 36

<211> 436

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA070752

<220>

<221> unsure

<222> (1)..(436)

<223> n = a or c or g or t

<400> 36

```
acgtgcagtt cagtcaatga aatcctgagg attggataaa gtaaacaacac tgaaatggat 60
gcatcgtacc atctactgat gaggaagata tgaggctccta gttgtgaatc atgaaatatt 120
tagagtctgg gtacccatga gttagaagag gatttgctga ggtcatttag gtcttcattc 180
tgctgtgatg tccagttgag ctactgacgg tcctctggct gcttctggaa actgatgctg 240
gcataggcgc ttaaatectc acttgagcgg cgggtggagc tgctctcacc gctgcccagg 300
ggttgatgan ngggtggggg tgggggaagg ctgcggttca ggggtgcact cctgagggca 360
ctgtttgaag tccttgacca aatccaggct tatgtagtta agaccattct ccaaaccctc 420
agcagcccca cacagt 436
```

<210> 37

<211> 567

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA082546

<220>

<221> unsure

<222> (1)..(558)

<223> n = a or c or g or t

<400> 37

```
agagaagacc gtggatcacc tggggacaga ggtgaaaggc ctgctgggct gctggaggag 60
ctggcctgga acctgcccc gggacccttc agccccgctc ccgaccttct cggagatggc 120
ttctgagccc tggagctgga gccagcaggt tggaggtggg gcacctgcca ggcagcgcca 180
cagaaccagc cctgtcctct cgacttcctt ccttagcttc atgtgaaata aaagctattc 240
tggctctctc tgtgtctgct gacagagtaa ccggtttaac tacagcctcc tctcactcca 300
```

```

cttccatgcc tggaggaagc ctgcaacccc ctccaggctc agacctgggg acacccccan 360
tcctgtcatt tataggggaa gatggagcag ggggttgattc acacagatgg ggggccctct 420
gaattggcct gcttctcaga atgttggtcca taggtnaaaa gcaaggggat cgggggttcag 480
gaccancaga atgttttagtg aatctgnatg aatgagaccc caggatttat gtgtccatta 540
agtggttgtt gtgnttttaa aaaaaaa 567

```

<210> 38  
 <211> 328  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA084138

```

<400> 38
ggttacaaga ttctttatct tgtaaaactat acataaacag taaaaaagaa aatgcattat 60
actttattac gtaaagtcaa cattaaattt tgtattgagt gtgtataaat taaatggaaa 120
taattaatca attttgcttt caatgaattg tatactggga aaccagttta cccactgttg 180
aaattaaaga taccaatacg taacattcaa caggtttttc catttttatt atgggcacaa 240
aaccattggg atgatatagt taaaagtgat ggtgtgcca aatgtctaca caattaatta 300
acatgctaac ttaaatacag cgggttaaa 328

```

<210> 39  
 <211> 370  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA085943

<220>  
 <221> unsure  
 <222> (1)..(370)  
 <223> n = a or c or g or t

```

<400> 39
agaaccacgc ggtgttctga ggggagcggt tattttcaagc naccgatggg acaaacantc 60
ccaggcttcc caggtgnan tgnccggggc ggcacctcca cttccagcgg cctccaacgc 120
ggcccttccc tgcccccttc cggaaacttct gggcggtggt gatgcggttg tacagcacgt 180
tgatctcata tttctgctgt ttcagcttcg ccatcaggtc gaacttctca gactccagct 240
ggtggatcca gtccgacagc tcctgggctt tctcccgag ctgttctctc cccatgtaag 300
tcaatgttca agagggcttc ttaacgctcg gaaaaggaat gcgcaccttc atctcccggc 360
ccccgtctgg 370

```

<210> 40  
 <211> 406  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA086264

<220>  
 <221> unsure  
 <222> (1)..(406)  
 <223> n = a or c or g or t

<400> 40  
 tttttttttt tttttttttt tttttttttt tttttttttt ttttttccan ggaaacactt 60  
 ttatttcngg aagtcagaag aaaaacaang ngcacaacct gaatgacaca gagcggcagn 120  
 tggaaaccac aggggctgcc ganagctggc ctttcacagc agaccactgt tttccagtga 180  
 gaatgggtggg ccattccaaa acaaagctaa agggttccaa acatccagaa tgggaagctgc 240  
 ttcccccaac tccattacct atactacagg atggattgct ttttgtgaga ccccttcttc 300  
 cactgggcaa ttttnggcat tatttaccct ccccccgatt tttaaaagct aaaatggcgt 360  
 cccagggaag aagtgcgggc ttggatgcan gcttggggcca ntcact 406

<210> 41  
 <211> 250  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA091278

<400> 41  
 gtttgccttc taattgatca tttagactat tctggctaag tctgcccaca tgtaattacc 60  
 ggctaattca agcgaggaaa aatgtaagtc atttagacca aagccaagca gtttctttgc 120  
 gtgggttact caagggcttg tggttacttg tatctcctct atgtgaactt gactttgaaa 180  
 gacagagctc tagtgtgcca gcctgctaag tcctgtaaga atagggaggg cggaggggggt 240  
 ggcagtacta 250

<210> 42  
 <211> 307  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA092716

<400> 42  
 gcgagtctgg aactctttct tcggggcccc ggggcacacc atggaggtct cctgttgaat 60  
 ggcccttggt gccctagagt gggacccagc cctcacctcc cccagagcta acctgggagg 120  
 tgctgaaggg gcattgggccc accgtaagca agggaaaaag ggcagatcat gcggggagat 180  
 gaccttgatc tttgattgct accctaacct tgacctttaa cccgtgattc ccccagctcc 240  
 tggagagatg tctaatatct cttagggacc agaccctaaa ttctctctcc ccatttgatg 300  
 ttagtgg 307

<210> 43  
 <211> 309  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA093923

<400> 43  
 gtcataatgg accagtcattg tgatttcagt atatacaact ccaccagacc cctccaaccc 60  
 atataacacc ccacccctgt tcgcttcctg tatggtgata tcatatgtaa cattttactcc 120  
 tgtttctgct gattgttttt ttaatgtttg ggtttgtttt tgacatcagc tgtaatcatt 180  
 cctgtgctgt gtttttgatt accctggtag gtattagact gcacttttta aaaaagggttc 240  
 tgcacgtggt agcatttgac cacagtggac gcgtggctat gcaggtgatt cctcagtcct 300  
 ccttggtct 309

<210> 44  
 <211> 271  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA094800

<400> 44  
 gcgactgcag aaaaagttcc agaaacaatt tgggggttagg cagaaatggg atcagaaatc 60  
 acagaaaccc cgagactctt cagttgaagt tcgtagtgat tgggaagtga aagaggaaat 120  
 ggattttcct cagttgatga agatgcgcta cttggaagta tcagagccac aggacattga 180  
 gtgttggttg gccctagaat actacgacaa agcctttgac cgcatacaca cgaggagtag 240  
 aggccactgc ggcatacagc gcatcttcac a 271

<210> 45  
 <211> 323  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA099820

<220>  
 <221> unsure  
 <222> (1)..(323)  
 <223> n = a or c or g or t

<400> 45  
 gtgacatggt ttttgcttta ttgaaattct ctcttacaaa aggtctgang tatttttaggc 60  
 caggcctaata ttgctttggg ccttgaaatg caggcccatg gtcattttcca tgtcctctga 120  
 agtaggtatg taaactagta gacttccatt ttttaagggtc acacactttt taacattggt 180  
 tttatttgat gtaaaacaag acttatgttg tccctaattg aaagaccaag taagagaggt 240  
 atgtgcgtct tcatggaagg gataactgga ttcttttgcca gaaccgggtt gggaatttag 300  
 tttgttcaat gtggcatctt tca 323

<210> 46  
 <211> 431  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA101767

<400> 46  
 catttcataa ataatgtact ttatttttatt gcatatgggt attaaggagg gcatccatga 60  
 tcaatacaga ctaaatacaa tgcactatcc tagtccaggt tattctcgtc tccagcagca 120  
 tcacattgac ccctatatac agcgtgtaca gtggaagaca gagcaagata agttaagtct 180  
 cttgtcatat cacaatagca agaaatatat ttaacatctt gatatccaga aacaatacgt 240  
 acccaaaaag aaaacactgt ttaataactg ttaaagttta tatagcaaaa aatattttta 300  
 atttaaggta agtcaggcaa aatgtacaaa gacccaatat acattgtgaa gtttttagcaa 360  
 acataacatt tatacatctt ggttccattc tgtaaaactaa attaaaaatg gtaaattattg 420  
 catatgcctt t 431

<210> 47

<211> 260  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA102489

<400> 47  
 agtctacaag ttcagaccca catgtaacgg attttttgctt catggttgct agaggctagt 60  
 gtgcattatt tctgaggatt atatccaatg acacgacgca gaaaacacaa atggacggac 120  
 agacggatgg acataatcat taagacaaga gactctaaaa cgtgccttag tgtccacgtg 180  
 attgatctaa ggcggggacc cttctaaggt ggggaccoga gtgatctaaa gcagggtggc 240  
 ttccagcaca aggtgcccga 260

<210> 48  
 <211> 365  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA121142

<220>  
 <221> unsure  
 <222> (1)..(365)  
 <223> n = a or c or g or t

<400> 48  
 tttttttttt ttttcaacaa actcagcttg actttattac atggaagctt gcaggagacc 60  
 agcggggaag gcctgtcttg gcaggaactc catggctggg ctggactgga ctgagcagtt 120  
 ggtgttccag atctgccggg gagaccagat caacagcctg cctcttcagt ttatatccgg 180  
 aagactcgcc caggtccttg ctacttgggg ccaaggtagg aaacagcctt tcctgttttg 240  
 ttgagggttg ccancagggt gtctgagctg tgcccaaagt cgatgcagac cttctttttg 300  
 ggcaagggtca atgttgaact ccantctctc caagcttggt tgaaggactc tggaaaacgg 360  
 gtttt 365

<210> 49  
 <211> 261  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA127946

<220>  
 <221> unsure  
 <222> (1)..(261)  
 <223> n = a or c or g or t

<400> 49  
 ttaaagttaa agaaacttta ttttgagtaa tatacatatc attcattcca ttttaattttc 60  
 atagctatgc nctatgaaaa ttaaattgaa tgagtaatat acatatcatt cattccattt 120  
 aattttcata gtgcatagtc atgtgtagaa gtacacaggg aagaataaac attagaaata 180  
 cctagccatg aaaatataca agtgaagaca tttgatatat ccatggacng gcttgggaagt 240  
 attataaaac aggatccatt a 261

<210> 50  
 <211> 444  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA130349

<220>  
 <221> unsure  
 <222> (1)..(444)  
 <223> n = a or c or g or t

<400> 50  
 tacaaaaaac aattgttatt tgtgtacttt taaaacctca cagtaaatatt ttcacactac 60  
 ctctcttggt gaaagttcac actcggaatt ccagagcagt ccatggccag gccactggn 120  
 tccccttgct ctctccttgg ctttggtaac cactggcccc agggactcag cctgctttcc 180  
 tatccatccc ctccagtagct gtcaccatgc aggttacccc ttctgtttct tctaccacta 240  
 actccatgtc tgactgcaag tgaaaggaac agaagcccaa acctttgggt tttaaggagt 300  
 ttattgctaa tctgtaaaac agaaagagac aggagataag catgacaaaa tatagggaag 360  
 aaatgacttt tgcctaaact tccaaactgt gtacaattga agcctccgct ttatagctct 420  
 tagcacacct ctcaaataag aagg 444

<210> 51  
 <211> 616  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA131322

<220>  
 <221> unsure  
 <222> (1)..(616)  
 <223> n = a or c or g or t

<400> 51  
 gatttccatg cactttaatg aggtccagca ctccaggagga ttagcgccca ccaccagctg 60  
 cctgggcagg ggagggccgg agcaggtngc aggcgtcagg cttaggacag ggaagggggc 120  
 tcaggatggg gaagggtcct caggacaggg gaaggggctc agaagagagc agggggctta 180  
 ggacaggaag gggcactcag gacggggcag ggaagggtgtg gggggcagtc gccacctggg 240  
 taggaagcag tgggtgttttg gacaggaggg gctgggtctc cagtgaccca ggtggacacc 300  
 ccaggcctga ctccacggctt tttggggaca tagtggtgga tccagtccaa gtagtaggtg 360  
 acacgggtgt agatgccagg ccggttgggc tgggcacagc tncgntccca gctgaccacg 420  
 cccgcctgta gccaggtgcc attcaccttg cacaccaggg gccctccaga gttcgccctg 480  
 gcatgagtcc ctccggtgtt cccggcacac agcatgtcgt tcacggatga tgccgacgtc 540  
 gtctcccgtg taggcgccaa agtggtatgt gcgtcacaaa tgtgggtttcc attatgggga 600  
 ccttcactgc ttcagg 616

<210> 52  
 <211> 464  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA131919

<220>  
 <221> unsure  
 <222> (1)..(464)  
 <223> n = a or c or g or t

<400> 52  
 tttttttttt ttctgagtaa ttttttattt tgtgcagaga caggatccag aactcctggg 60  
 ctcaagtgat cctcccactt tgggtctcca atgtgctaga attacagccc tgagccacgg 120  
 ccccatgccc cgtttttacc agtgtatatt ttctactgga aaatgagact tttaggggatg 180  
 aatgtgggact tgtctgttga aacttgtaaa tttgcttaaa aaaaaaaga tctccaagtc 240  
 ttcacaaaat tttatatcc ccaaggctgc cccatcacaa tgcctgtgaa gcttgactgg 300  
 cagacactga ggctgaagc tgggggctgc aggggggtcac tggctcaccg ggtccccccg 360  
 taatctgtaa aacatactgg gtgaggagg ctgctggagg acctgaatct ctcccttctc 420  
 caggcagtag tgaggcatat gctgntggcc ttggggccaa taaa 464

<210> 53  
 <211> 393  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA133756

<400> 53  
 ctccatttat tttattttat ttttttataa aaaagcaggc ataaaatata attacattac 60  
 tacgaagatg caacaaaatt ttaaaaaaga aaaaggggtg caattttttt cagagaggac 120  
 agctgatcaa atatttataa ttttctaaac catgcagttc attacttatt acaattccaa 180  
 acaaaactca ttattatggg gatgggagtc agggagaggc cccccccaa gcatgatatc 240  
 cagcgctgtc acacagtgtc tatgttcaaa gtgcttacaa atgggtgtctt cacagcatag 300  
 ggaagctgaa gccttattcc agggaaggag aggtgagtca gtagcagtgt ccaatggcag 360  
 actcagaaag ctcggcagtg acttgctcaa aat 393

<210> 54  
 <211> 398  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA135870

<400> 54  
 aaaattttaa ataaaatttt attttatctt atactcaagt tcagacaata gcatgtgggtg 60  
 tacattcaaa attttttgaca ggtacagagc acattaaaaa atgaagacat gatcaaggag 120  
 atgtaagaga caaatagaca acaacattct ccctgaatct ggaaaaaagc aagcaataag 180  
 atcacgaaag gcagctgtaa aacaggatta ttctgcatgt gttgcccaca actagggcaa 240  
 ggttatctct catcacaagt acaaagccat tgatgttagt gtgtaacaga gagaaaacag 300  
 aggatttgta cagctgagga aataaatggc agatgtttaca caggaagcaa tataacatgg 360  
 tcattaagta actgtattca accctcaa ttaatttt 398

<210> 55  
 <211> 390  
 <212> DNA  
 <213> Homo sapiens

<220>

<223> Genbank Accession No. AA135929

<220>

<221> unsure

<222> (1)..(390)

<223> n = a or c or g or t

<400> 55

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aaagatatca attatatatg tatataaaaa aaaaacctca ctttccccac aaaaagcaca 60
atactgttat cacaaaaaaaa atcatcatcc tcataattaa tcatacctagc cacgcagggtg 120
tntttgctgc caaaagatgg gacgacaaat aacgttgacc aggcagaacc cctagacacc 180
ctcggccccc ccacagcctc tccggctgcc gaagacgagg gacgagggca aggcagagtt 240
ctctgagggtc cccaggcctt caccocatct gtcagtctgt gtcttctagg acagaaggta 300
gttggtttttt tttcttttaa aacgtctgtt caaaataaaa aacaaaagca cacgcgcaag 360
agaagcggggg aggaacggag gctgcctgcg                                     390

```

<210> 56

<211> 511

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA142858

<400> 56

```

tttttttttt ttttttttca aggggaaact ggggcagttt tattgacgat ggcaatgtac 60
aagactccac acctaggtat gtgcacgagg taaggcctga gctcaggcct tatgatcctc 120
ctcaggaccc ttgggggcaa acttctcctg cagtttcttc cacatgcctt tatctatttc 180
cttaagctct tccaagggtg ctgtggacag gatcagcttg tactcttcca acgacaggcc 240
actgaagctg gtgtctctgg ggcgagggtg cttgtgtttg tagtagtttg aatggagtcg 300
cgctaagtct cgtacatctg atcacaggcc tcaggctctg aacctgggta ttctctccct 360
cccgaaggc ctgtgctacc cgctgtcgca ggtaagcgcc caagtcccgg ccccgtttgg 420
tctcgccac tggccattcc tcacagagct taagaaaacg ccggtaccgt gggccgccat 480
ttgggccccg cgtgttcccc cccctcgtgc c                                     511

```

<210> 57

<211> 341

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA147224

<220>

<221> unsure

<222> (1)..(341)

<223> n = a or c or g or t

<400> 57

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aatacatttt cacagtgtgc tgaatgtctt tatttacaag atatcattct atagtgaata 60
tgaacaaaac gaatgtgcat ggttgaaata actgcttgat taaaaatgtg ctgtgaagat 120
gaatcactaa tcttttcta atgcactctgat aacacaataa acatggaaaa atactaatcc 180
cctaatagat cnaaatatag natatagncc ccnaaatatt tcngggggat ggattttcct 240
tcngagggtt cncaaaaagg naaaanggaa atggnntccc ccagccaatg gtttagccaa 300
atattggggg aaatgccc atccaatggga aaaacccgga t                                     341

```

<210> 58  
 <211> 561  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA149579

<220>  
 <221> unsure  
 <222> (1)..(561)  
 <223> n = a or c or g or t

<400> 58  
 atagtaaata tattacattt attctaaaac ttcaaaatta ttctgttttt gtagtactga 60  
 aaaaaagaca gtgccatttg aaacaacaga tgcactcttt atacattttc acaagtttgt 120  
 ttttcatatt tttaaaggcc ccatttatct gtaacagtgg tatttttatt tagagtatcg 180  
 gctacttaat atatacatgc aacaatatat gctttaatag tcatttaact tttaggaata 240  
 tttcatcaca ttaagtgggt aagcatagtg ttaaaagagt ggaatttaag gaataagaaa 300  
 atattgaaaa tacgctgtta ttttcatttg ttcactataa tagaatgttt ttgccataa 360  
 aagttatcat tgcccaactg aattcctacc aagaactaac aagtgattct cagtggggag 420  
 aantttnttt nntnngaata tagagggctc gttagaaagt gcagatntag gcgggcgcgt 480  
 antcacaccg taatccagca cttggaggcc aggcgggcgg tcacgangta ggagatcgag 540  
 accatccggc tacacggtga a 561

<210> 59  
 <211> 420  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA150920

<220>  
 <221> unsure  
 <222> (1)..(420)  
 <223> n = a or c or g or t

<400> 59  
 agcgttgtaa gggtttatttg ggtagggaag gggacaagtg aggtaactga tccttgcttt 60  
 gtagacagtg caagacaatt atttgtggtg aagggactgt atgccaaaca acgttactca 120  
 tgcttttagtt aaaactttta gtcacctaaa acagaaaca ttctnaagaa cactgggtgga 180  
 aaatagaagt gtaaattgttt cagacaaaac caaggcattg tcagcacgat gtacattata 240  
 cggcagatan nacagccaca tcctaggcca cagagcagat cccaagagcc ccaggcatgc 300  
 aggagagttt taaaggaaca gacggaaatt ttaactgtga aaaccacgaa atttcatgac 360  
 ttttggtcag ctacnaccac aactaatata tgaccattaa gagtaaaatt ctgaccttta 420

<210> 60  
 <211> 426  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA151210

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1) .. (426)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 60

```

ttttttttttt tttctgggatg aatacatggt ctggtcttgt tacaggttct ggtaaatacag 60
atggagaaat gttgttgcag aaatgtcagc aaactttaca gcagtagttc acacatgcag 120
ctactataca ttcattcatt gctattttcc taagaaatgg agcaacctag gagcttatgc 180
tacagtagat tccaatgaac cataatgact acttcaagaa caaagaagca catncaaagg 240
tgtgatattc tctgttgggt ttgagttttc aaacctgaaa ttcttttaaaa tacatttctg 300
ggatttttatt taaatattga tgcnacacac ctaaaaagca gtgacttctt gggtaaaatg 360
taatactgaa atggaaaatt gtcttttcaa aaaaataaga agtgtggttt ggaaattccc 420
cgtgcc

```

&lt;210&gt; 61

&lt;211&gt; 400

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA151428

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1) .. (400)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 61

```

cagagagaaa gtgctttatc agccgggctc agcccgacac cggactcgcc aggagtaggt 60
ggtcagcacg cgctgctggc ggcnaaccacg cagggtgtagg tgccctcatt gacggcggtg 120
gcgatgatgc tcagggtgcgc ctgccccagg gccaggtagc cggggtagga gaactccagg 180
ggctcctggt ccttgtagca gtacactttc cctttcttgt ggaggatctt ctggccgcag 240
cggaaggcca cgttcctgcc ctcggnacca agcctgggtt tggctcctggg gggcggtggg 300
ggtgggtggc caccgtgggg aaaggggaat ttcgtagcaa gaaantccgc aagctngctt 360
gggggcaaaa agcttccttt ccantgaagn cccgccggga

```

&lt;210&gt; 62

&lt;211&gt; 502

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA151544

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1) .. (502)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 62

```

caggacgagc tgtggggggt gcaccggctc tacggatgcc tcgacaggct gttcgtgtgc 60
gcgtcctggg cnggaggggc ttctgcgacg ctgcgccggc gtcnatgaag aggtcttgcc 120
cagcagctgc gacttctgct acgaattccc cttccccacg gtggccacca acccaccgnc 180
ccccaaggac caaaaccagg ctggtgccga ggnaggaacg tgaccttccg ctgcggccag 240
aagatcctcc acaagaaaagg gaaagtgtac tgggtacaagg accaaggaag cccctggaag 300

```

```

ttctcctacc ccggctacct ggcccttggn cgaaggcgca ccttgaagca tcatcgccaa 360
cgccgtcaat gagggcacct acacctgcgt gggtgcgccg ccagcagcng ttgctgacca 420
cctactcctt ggcgagttcc gtgtgcgggg ctgagcggct tgaataaagc aatttctctc 480
tgaaaaaaaa aaaaaaaaaa ag 502

```

<210> 63

<211> 285

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA152200

<220>

<221> unsure

<222> (1)..(285)

<223> n = a o r c o r g o r t

<400> 63

```

tactcttccc tcctcattta ttttggaatg tgctagaaac agcttgaaac atccctttaa 60
tagcttcccc gcctcacgag tgttgaatga catgacgaat tctccttcat agaaggtaga 120
ggtgaaccag aactggaggg gcatttgagg tccttctctc ttcagaaagt gcgatcgcat 180
caagatgcat gtgggttttca gtagaactgg cccatgtttc ttgggagcga ggtgtccaaa 240
ccactgttca tccatatttc cnggatgatt tgctcccngg gctca 285

```

<210> 64

<211> 457

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA156565

<400> 64

```

atagtaaata ttttaattggt tccatcagca attccagcac aagttttcct ggatggtagg 60
cagaatcaag ctacccaagg gttcatgatg aggtatgggg gtcactgagg agaccccag 120
agtcactgac cctcccgcg acctccacac accaggtggc cctgcagaat gaggggtggg 180
ctgatagaat gtcaattagg ggagacagga tacaggggtga ggggaacagg tctagcttgt 240
atatttgcct gcaggaagga gggagggcag gagagactct gcatagaagg actggaacta 300
cacatttaag ttttcaaccc caatatgcag ggggaaacag ccaagccact ctccatctgt 360
ctagtattag gaacctctct tcaagtggtc ttttgtcatc tctgttcttc ttcccaattc 420
tgtattccag attccaaatt ctacaattga aacccaa 457

```

<210> 65

<211> 428

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA156897

<400> 65

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cagacatgga aatataatth taaaaaatth ctctccaacc tccttcaaht tcagtcacca 60
ctgttatatt accttctcca ggaacctctc agtggggag gctgcgatat tagatttcct 120
tgtatgcaaa gtttttgttg aaagctgtgc tcagaggagg tgagaggaga ggaaggagaa 180
aactgcatca taactttaca gaattgaatc tagagtcttc cccgaaaagc ccagaaactt 240

```

```

ctctgcagta tctggcttgt ccatctgggc taagggtggct gcttcttccc cagccatgag 300
tcagtttgtg cccatgaata atacacgacc tgttatttcc atgactgctt tactgtattt 360
ttaagggtcaa tatactgtac atttgataat aaaataatat tctcccaaaa aaaaaaaaaa 420
aaaaaaag                                         428

```

```

<210> 66
<211> 602
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. AA158262

```

```

<220>
<221> unsure
<222> (1)..(602)
<223> n = a or c or g or t

```

```

<400> 66
ggtcgagctc aggttctgct tgccgggtgc ccagtgaagc cgacagagcc tcgagtgctt 60
gatcactcat tgtatccttc tccacctttc ttttcttctc ttgggggtgga gcagcacttc 120
tgactgtccc tgctgactga gcttttaaaa cttctgtaga ttctcttttt tcagttttct 180
ttccagcagc tgtaggcgac ccacaggtga agtcagatga caaggcgtct atagcatcat 240
ctggccctat gggtttagcc aatagttccc tatatttttg aggaattgtg acttctcttt 300
tacccaattc ctctatgtag gtggaactca ttggatctga aacttctggc ccagtatacg 360
ttgtattttc ttcttcagtt tcttcaggtc ctctaaagt atctattaag tcatccaaag 420
cagcatccat gcctgacttt cccgatgggt tatccgggtt agattcaact ggcacagctg 480
gggttaatga tttcttttct ttttcttctg canccggctt gcagatattg cagtgatacc 540
agcaacantc tctccaccag cagaaatcat gtcttggtgg ttagtctttg ggtcnggtga 600
tt                                         602

```

```

<210> 67
<211> 392
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. AA159025

```

```

<400> 67
ttgatgtcta gaaacatctt ttatttgggt aacagggtccc aaaacaggtc agttaataaaa 60
atagattcta aagaatatgt ccctatgcac agccctccct ccccaaaaat aacgctgggg 120
gtaggcattg cctttccccc ttgggctcct cgggtgtatt taaaaaaatg ttttggcagc 180
tcagtgttta tcactctgggc atgggacacc atgtccatgt ccccatattc ctagggtaca 240
gcagcagtag atggctgcaa caaccttcct cctaccccag ccagaaaaat atttctgccc 300
caccacagga tccgggacca aaataaagag caagcaggcc cccttcactg aggtgctggg 360
tagggctcag tgccacatta ctgtgctttg ag                                         392

```

```

<210> 68
<211> 476
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. AA165312

```

<220>  
 <221> unsure  
 <222> (1)..(476)  
 <223> n = a or c or g or t

<400> 68  
 tcgtnnntc gggtctgaga aatagggcact ggcaattttac acatgccttg ctgtgtaatc 60  
 tcaactatatt tgctcaggca aagtgggaga agcagcctta ggttttcatt ctagagatgc 120  
 cggctttccc acctgatcgg cttagagtgc acgattgact gttttgggct tcatttcacc 180  
 ctctacataa caagcgggtg gactagatgc cttagcaagg gtccgtgttg tgtgggtgtct 240  
 ccagccacgc actcagctca atcttagcac agttaaaaaa tgcctttcta gcaagttatc 300  
 tgcccagtgct ctgaaaaagt atcattttctt gtgttcaata aaaaagcctc ctaatttaat 360  
 caaggaccta tggagataac tgtcttttag ttgtggcatt gcaaggatac aaatgcagag 420  
 atatitttaaa agtgatcctt ctgtaagagt gaaccacga tatgatctgg nagcaa 476

<210> 69  
 <211> 479  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA165313

<220>  
 <221> unsure  
 <222> (1)..(479)  
 <223> n = a or c or g or t

<400> 69  
 cacaagcccc cactgccata gccaaagtttt ccccggtttc ccagcagcca gtgactttctg 60  
 tagcattagg attccttatag tagttattgt ctacatttct cagcagattg aatatgtact 120  
 gcctcttact actggactgt ttattcttaa atgtgtacag tatggattta tgcgtctat 180  
 atattatgca tttatttgc tcttcgttg tgatggtaag ctctggagg gcaagtcttg 240  
 catccactgc tttgctggca acccgactgg taagcttctg gaaggcaagg cttgcatcca 300  
 gtgctttgct ggcaaccgca ttgctaagta ccgtgtttta agcttagttc agtctcaagt 360  
 gtttgagccc acatctgaag accaataaag caactgctgg gtttatcccn tgggagctga 420  
 cagaatttcc tctcccaa at accatanaca ggaaaatcat aagcctgaat taccgggtg 479

<210> 70  
 <211> 298  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA171939

<220>  
 <221> unsure  
 <222> (1)..(298)  
 <223> n = a or c or g or t

<400> 70  
 ttttttgagg cacctgtggg actttattag gtaaacagac cccagctcca gccacagggtt 60  
 ggaccggcca gctgacagtg cggcctcaga ccccccgcc aggttcctc ctccctctc 120  
 tctcaggggc accagtgtgt gaaagatcgg ggcattgccg ccacaggggg aagcaggggtt 180  
 caggctgccc cacctgggtc tggccctggc aggcgcccc tcacctggct ctgctgtggg 240

anccgagaac aaagacatna cctgcctggc tcctgctgcc ccgggggggtc agcnagca 298

<210> 71

<211> 596

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA173223

<220>

<221> unsure

<222> (1)..(596)

<223> n = a or c or g or t

<400> 71

```

tttttttttt ttcagccaaa ttcatatatta ttccagtctc taacactctg ttgttatgtc 60
tgctgtaaga tgatcaggag ttagtatgaa gtattcttct ctacgcacca aagaaaacaa 120
acaaagcaaa cttcaagtca gtgaattagt taccacagtt aaaatgcatt tgattttgtc 180
cttttccttt ttcacaagaa cgacagctga atactcttct atgtgatgcc tgatattttt 240
ctttttcttt ttctctcttt tttagagacag ggtctttaag atgggggtctc gctctgttgc 300
ccagggttggg gtgcagtggt gcaatcttgg ctcatgcaa cctcagcctc ctgttttcaa 360
gtgattcttc tgactcagcc tcccaggtag ctgggattac aggcattgtc accgtgcccg 420
gctaattttt gtatttttag tagagatggg ggnttcacca tgttgccag gatggctctg 480
aactcctgac ctgaagtgat ccaccgcct cggcctccca aaagtgtggt ggattaccgg 540
tgtgagccac tgtgccagct ctgatggtga aaatttcngg tacaggccta gcccan 596

```

<210> 72

<211> 408

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA180314

<400> 72

```

ttagcaaaaa cagctttttt attgtggtag tttgtggtag gtgctcctgg atcatgcaga 60
aaaaaggctg ggcctcagtt agctccggga gccattctta ggaccctccg gctgcacaca 120
gagaggggct gggtagctgg ctgggctggg gcacgcattc actgggctgg cacaggctga 180
ggggctcttc gccactatc attaggcccc tccagcccg tatgctcagc ccccggtca 240
ggatgctcca gggcgtgccg ggtatcagcc tgccagagct gcaccaggct cgtcgggggtc 300
tttctgcca ggttcttggg catcatgtca gcccattgca ggagcagcag tttgatgatt 360
ttgtagcggg tgagcctcac agcgtcatgc agggcagtat ccctcgtg 408

```

<210> 73

<211> 479

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA182030

<220>

<221> unsure

<222> (1)..(479)

<223> n = a or c or g or t

&lt;400&gt; 73

```

atcatcataa aaaatatatta ttataaaaaa ttatcacatt tctctgtaca tagcataaag 60
acaaaaaacac aatgtataca ttaataaaatt aagtgggcct gagtattcag tatccatcta 120
ctagaatcct aaagctcttc cccagatttc acaaaggcca atgtagatta tttctatattt 180
atcaaagttc atttgcacag ttggtgtaat tgagatacta acatttcttt tttctagtgt 240
tttaaagata gttcacagta tttagagttta ttaattaatc aactgattta aatctttggt 300
aaatacaagt atttacatgt aaaaatgttt agctcaaatt tcagtaaaaa actggaaatg 360
accaataacc tactgccaac tgttttggtta taatccagaa atgcatgagc cggactccca 420
ccattaagaa atggcactgt cnaggacctc ngatgataaa actggaatcc ncaaaaaat 479

```

&lt;210&gt; 74

&lt;211&gt; 313

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA182882

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1)..(313)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 74

```

ttctggcaca tgattgagca tttattgctg cactaacaga ggggtgctggg ggccccacca 60
tccttgccctc tgcccttttc acctccccct ccctcccagc ttcttctgcc tagagcggttc 120
cagattcccc tcacattttc ctggatcagg gccactcctc ccaggcacct cttgccctca 180
ccagtacctt ttgtcccttc tcctggggct gagggctcctc agctgtgctg gnccccact 240
ctccaccctt agtgcccact gtctctgcca ccctcccttt ggaactcagg gggctcaggc 300
atcctggcct ctg 313

```

&lt;210&gt; 75

&lt;211&gt; 258

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA188981

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1)..(258)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 75

```

tttacacttt actgagacaa ttttattcac tatggatata tatacatgat caacatttta 60
tcttcattct tcagaagact taattagagt agctttcttc tcatacttat ctctaattctc 120
tttaatatatt tccgagagat cttctgacat gcattcntca tattctctat caacttttagc 180
aatctgctcc tcaagatggt tctctacaga cccaacatgt gtagcaacca tctctaacag 240
acgttgcaag ttaatttc 258

```

&lt;210&gt; 76

&lt;211&gt; 506

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA189083

&lt;400&gt; 76

```

tttttttttat tccaaatgtc tttattgaaa cagaatgata gagcaagaaa taatgaggtc 60
tgggtggatg tctttgggcg caggatggag cccagaccca gtggttacag tgtggagctc 120
tctccctgtc ccctgactct ggccaaggaa gtgaatgcaa agcagcaggg aggaggcagg 180
gtggggacgg ccctctgagc tctccgcgat ggctggcggtg aggtgcctct gagacttctg 240
ggcagccctg ccttccctac tcagtcttcc cgatcttctt gccacctttc tgtgtgggccc 300
agcctcccg cagtaactca gaggccgctc agagggcagg gttgggggtg gcaagcagcg 360
ggacgtggtc acagcgggta ggggggtggct gccgcagcag ggaaggccgg cgacacagct 420
ccccgtcccg gagcacctcg ggcaggagct tgcgcttggt ctccggaagc agcataatgc 480
tgaagaatgc agaagagggc gcaagc                                     506

```

&lt;210&gt; 77

&lt;211&gt; 513

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA193197

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1)..(513)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 77

```

tttttgaatt tgactacttt tacttacaag agacttttcc ccatcaaacg atttcccat 60
ccatttatta cacttctgaa gtaggatttc tgaagtcac ttatggcatg taattcttag 120
tataatgcac aggattcctg tcattttgaa gcacgaggag aggtttttga tatcttaaac 180
attttttttag tgtagatgca catattctcc acttccaatt gtaatagaaa atcagtttaa 240
ggatacccta atgatgcaaa tgaaatgatt agcaaacaac tcaaatttag gagccttctt 300
tacaatccat tgagtgaaac agattcacia aataatttgt tcaactgaag atttaattta 360
ttattagaaa atgggttttaa actctgatca ttacattgaa gagtcaatga ctgagggtttt 420
cttacctact ggctcatctc ttagacaata acttcttgaa taatttcnac atgagtgctc 480
gtacaagctt ttaaaaaaacc gaataaatta aag                                     513

```

&lt;210&gt; 78

&lt;211&gt; 499

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA195678

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1)..(499)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 78

```

gaaaatttgc ctcttggtta ccctgtaatg gatggggccc agaaatgaaa tatttgagaa 60
aaacaagtga aaagggtcaag atacaaatgt gtattaaaaa aaaaaagcct attaatagg 120
tttctgcgcg gtgcagggtt gtaaacctgc ntttatcttt taggattatt cctaaatgca 180

```

```

tcttctttat aaacttgact tgctatctca gcaagataaa ttatatataa aaaataagaa 240
tcctgcagtg ttttaaggaa tctttttttg taaatcacgg acacctcaat tagcaagaac 300
tgaggggagg gctttttcca ttgttttaag ttttgtgatt ttttagctaaa gagagggaac 360
ctcatcctaag taacatttgc acatgataca gcaaaaggag ttcattgcaa tactgtcttt 420
ggatattgtt tcagtactgg gtgttttaaag gacaaatagc tgctagaatt caggggtaaa 480
tgtaagtgtt cagaaaacg                                     499

```

<210> 79

<211> 463

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA197112

<220>

<221> unsure

<222> (1)..(463)

<223> n = a or c or g or t

<400> 79

```

aaagtataaa gtgttttgga aaaaaaggaa aaaaatctat ataaaaatct cttcacatat 60
aaaatcctga agaagggtgca aggtgagacc cagtgcgagg ggcgtgctca gatatgcagt 120
gtgtgtgtgt gtgtgtgtgt gtgtgtatcc gtgtgtacat gtgtgcacgt gtgtcgtatg 180
tgtctgtgtg tctgtgtgtg tgtgtgtgtg tgtgtgtgtg tgtgtggtgg gtgcaagtgc 240
acgtgtggcc cacagagggt ggggagaaaag cttggccttt tacttccatc caggaggga 300
ggagggcgcc tggctcctcca gccttgagg gtctgcagct gggcgggacc tctactcagc 360
caggctgttg cgcctcgact ccttctcctg gagggcgcc atggcaagac gcagggtgctc 420
cttcagctgc tcgatctccc gctcagaccg tgtctngatg tga                                     463

```

<210> 80

<211> 404

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA205376

<400> 80

```

aagatttgaa ttttttttat tatcccagca aacattacac tagagaaaat gattgggaaa 60
atacaaataa gttcattaaa aacacaggct gattattcat atctattaca ttcagaatta 120
tgcgaaacaa ttagttatat tgcaaagctg taattctttt tctaacaaag catgatttta 180
taaaacttta atgttgccac tgattcaatt ttaatacaaa atacttatat acacaatata 240
atataaaaagt aaactgtgta gtgccttcca caaaggata tattaaggcg ctttacaaat 300
ataccaatat tttagaccaa attacttttt gcttagatt aaaatgaaca ggctaaatgt 360
tccactttaa ataccaaagg gatggtttat taaaaatttt ttat                                     404

```

<210> 81

<211> 523

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA205724

<220>

<221> unsure

<222> (1) .. (523)

<223> n = a or c or g or t

<400> 81

```

cccattgggt gacagcggtt attgaaagga aatcttgctt tatccaggaa ttcactcaca 60
tggaggtagc tgcaaggaga atgtctcttt ctcatgacaa ccaaagcgac caaaccatac 120
cctaaagcag agacgcaatg gaataagtca acgggcattg tagaacgaca ctccagaagca 180
ggaaaaacca taaaagatac aggatgattg tctcttcagt attgcatttg gccatgtatg 240
tgtttttaca taaaatatat gttttctttt taagctagct aaagaaaata ctcttgatcg 300
gggttagttc ttaaagcaaa aaacagaaga aaagtatgta tatataatan aattaaagaa 360
cgatagcatg ttatacctgg aaaggaccgt gggcactaat ctgcactttg ttccaggtaa 420
tccatggctc tgagagtgag cactctgtca aagtcactgg ggtgagatga gccgggactt 480
ggaaaaccct ctcttaactt tcagtctcaa ctctccac tcc 523

```

<210> 82

<211> 587

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA211443

<220>

<221> unsure

<222> (1) .. (587)

<223> n = a or c or g or t

<400> 82

```

catttagtca aatatttatt tgaactcata caaagttagt tgacataatt taaaagggtga 60
agaactaaaa cgcattccaa atattgacca aaatactgta ggaagtagct tgggaaactt 120
ttcatcaaaa tcgttaggca cattgccata tcattctcca taaaatcata tccctcctca 180
aaaccacacc ctccaggtgt tgaatttatg ggctaatttg ttctgtgagg tgccaaaaat 240
gaagataaag taagaaatac agccaactag aaggaagaga tataaatgta caaacaggcc 300
atttctgcta gagtctcagg cattcaggag gtccacaatc atcatacaaa tatataaaat 360
tttagtgagc tattgaatcc atcttctgcc tctttatttc ttcacatcaa tccttttttc 420
ttctactac tggtcagctt tggggacata ttttaggttc acttttaata ttctggattt 480
ccgatagatt gactgcaggc ccgggaggtt cctcgctccn ggaattggct tcttctcttc 540
atccgaggtg ggaggacacc ctctccact tcgggggaca ttctttt 587

```

<210> 83

<211> 382

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA214688

<400> 83

```

gtttgttttg tgggggttaca cgggggttcaa catgcgtatc gaaaagtgtt atttctgttc 60
ggggcccatc tctcctggac acggcatgat gtctgctccg aacgattgca aggtgttcag 120
atthttgcaaa tctaaatgtc ataaaaactt taaagagaag cgcaatcctc gcaaagttag 180
gtggaccaca gcattccgga aagcagctgg taaagagctt acagtggata attcatttga 240
atthtgaiaaa cgtagaaatg aacctatcaa ataccagcga gagctatgga ataaaaactat 300
tgatgcgatg aagagagttg aagaaatcaa acagaagcgc caagctaatt tataatgacc 360
agtttaggaa aataagagct ca 382

```

<210> 84  
 <211> 398  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA216589

<400> 84  
 cacaaatttta agtttggttt atatatttta ttgacatggt tactcaatgt ccacatcatt 60  
 ccatctgcat cgtcttccta caaacagttt ttcttctact attcgggttat ttctcctttt 120  
 tttgtttcct atttcagaat caaattttatt ttacttgcaa agtcagtggga atatgggttg 180  
 gaaccagtag ggctctaac ttaagcccag aacctgtcaa agagaagtgc agtatcattg 240  
 ctaagacttg aacagtttat ctctcagaat cttcagttcc tttgaatttc tcagctctta 300  
 gtgtaatctg ttttatgtgt ttgttgtaga cttccattta tgggatagat ttccaaaata 360  
 attttgggta atccaactgg gtatttttagc attcccgg 398

<210> 85  
 <211> 378  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA219100

<220>  
 <221> unsure  
 <222> (1)..(378)  
 <223> n = a or c or g or t

<400> 85  
 tttttttttt atgcttgaac taattttattg atgagattct catttctgta gtataaaagg 60  
 aaaatatttt gcagttatct cgtatttgaa agactttgcc atagagaact ttatcagaaa 120  
 tggatgaact tttcattatt tcttataagc atattgggtt tggcctgctt gagtttaaaa 180  
 ctttttttgg tagacntaga atgttaatat ttagataaag aaaatatttt acngaagaca 240  
 ttaccagaaa gtaaaataac ttgaacattt cngtattagc ncnttatcag agaataacat 300  
 ttatttttatt tggaaagttt tccnaaatat gagacnatch gcnatttctc agacnaagtg 360  
 aaaaatttaa taaaatag 378

<210> 86  
 <211> 444  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA219304

<220>  
 <221> unsure  
 <222> (1)..(444)  
 <223> n = a or c or g or t

<400> 86  
 gcttggggcaa aagtcttcag aacaaaggct gtgagcaggt gttgccctgg ttcttgccat 60  
 atcgctcccc aaagggtgctg taggagccat catagtgttt gtagttcaac tgtctctggt 120

```

aaccagtgtt gagatagcca atggccttga cttgacctct ggagtaagct gctgtgtttc 180
atthagataa tccagtacat agatgttagg agcaaagagg accatattct gctctccaca 240
gccatagggc atctggagaa gatttttgtgt gttttgcatg gcagagctac atatgtctcc 300
caaaactgag acagaagctc gggcagattc ttctaccaca tttggtggca gtttcaggga 360
taattcttca gaaacctcan cacctgntgg acnaagtagg gagttgaatg ttgtttcctt 420
ctctagtcct tcaggttcaa ccaa                                444

```

<210> 87

<211> 341

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA219552

<220>

<221> unsure

<222> (1) .. (341)

<223> n = a or c or g or t

<400> 87

```

tttttcagtc atgattgggt taaaagttta attggagacn ttgccggtgg nnaacaaaat 60
ganggcatac aactgtcaca ggcagggcag taagtacaaa gtctagctgt aaaaaccgtt 120
tgaaaatata aactcgtttt tggaatacat gtgtcaaagg ctgcccatgt taataccttt 180
ggtataaaac ggtaacgatt cccttgacaa acccatccat cacctgacgc acattcacat 240
ctcctggtaa ctactctacc tagtctagtc tcaaccaccc ctgtcagtca cgactcactc 300
ctgttccttt gcaggtgcag aggagcctgg gaggtaggtc a                                341

```

<210> 88

<211> 323

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA227926

<400> 88

```

atgtaaaacta tcaaagtgtt atttaaattt ccatttaaaa tatttttcaag taaaatatgt 60
acaaaaatgg ttataaaatg gttgaagcaa ctagaagcgt gacagggtata atacatataa 120
atacaaccaa aattcaattc aatgcaaagt tgaatgacat catattgcac caaaatttat 180
tccatacaaaa agcacatgca tcaagagttt ccataagatg aaaacaaaca cacttacttc 240
atagcatctt accacttact tacacaaata gcccataaac accatctggc attgtgattg 300
cagtaccaga actctcccca gag                                323

```

<210> 89

<211> 469

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA227936

<400> 89

```

tttttttttt tttaaaaaca gaagcgcgac catttcttta tttaaattata caaaagggtt 60
ggggaggggg gcagctgtgg ggctcggcac accccgggccc ccaccccggc ctggcgctgt 120
ctgagaagag gggatctgag ggagatccag ggatcaggca ggatagggat ggggcaggac 180

```

```

atgaggctgg gggatgcaga ggtaggtgg gagaggctac cggagtaaga atgaggctgg 240
taggggaggg agaaagagag caaagagaga gaggagcaat tgggggccag ctggagagct 300
cagatggagc aggtcaggag gtggaacaat ggcagagtga ggggtggaggg cgcagtgtct 360
ggagagggcg aaatgagaag gctggggaga aagaagaggg tggcagctct ggtgcagggc 420
ccagagcagg gagccaggtg aagagtggct ggactttgct gccccacc 469

```

<210> 90

<211> 462

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA232266

<400> 90

```

atctttctac tttcttttaa tatcattttt taaagttggt aagcagctag acatcattta 60
gaagcagacg ggttaaaata gacaagaaat agcaaagaca catccttcac atcgtagaga 120
actgtattag tatccaccac caccatcaca ggggagggct agctgtcact ggggtcagga 180
gtactctcca ttattgtgca ggggaccaga cagcatttag gtgtgacgat gtcaaaactga 240
gtggacatag agagtgccgg gatcaaggct tacagttttg gctctagact tgcgtgaggg 300
ttggttactc ttaatctctt ccaggctgtg ctggatccca tagccgaagt agatagcaaa 360
gccaatcagc atccagaccc caaatcgggc ccaggtagca gctgtcatct gcatacataag 420
gtaaatattc acagagatgc tcattagtgg gaggagaggg aa 462

```

<210> 91

<211> 401

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA232508

<400> 91

```

gagggtacat cgggggagag gagaggagag gagagcctct ctgtgccttg gtttccatt 60
tgtgcattca gggcctctgc aggtcacac agggagtctg aggggatagt gtttaagtga 120
gcactcaggg ttctctgag gaaaagaaat gaccaaagt cagactttta ttactgccat 180
tcctgctcct aatgggagca ggagtcaaaa ggaaaaacaa attaaaagg gctaagtga 240
aaggaggaga gatgagacag agagtgtgaa gggctatgcg cgtggcatct cataaattct 300
tattgagaat ggcacaggta ttaaaaaagt ttctgggtag tctacgagaa atgtcaatta 360
ttatctctac tacaactact tacatatatc taatgggaaa a 401

```

<210> 92

<211> 387

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA233347

<400> 92

```

gctgcaaaca tgcagagatt tcatttattt tgtttggcac atgggaacta cattttgttc 60
ctattatctg tgtgtttcac tttgctgtgc agattttcat ccaatttttt tcaggggagg 120
gcataacat ttgtagggct gtatctatcc aattctgcct gtaacaaaca cccaacatc 180
ctaaaatata aattataaga cagacaagtg taatgtaaaa ctctggagaa catcaaagaa 240
aaatggccat gcactgtctc tttaattgtt tcctacgata tattaaaata aaaacaaagt 300
ttcagtctct tcacaagaag taatttatat tctctgaatt ttttcagcca caacaactgg 360

```

attctctttt ctgatttttg ctgcagc

387

<210> 93

<211> 403

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA234095

<400> 93

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attaatgcaa acatattttt attaaagaat gaatgcattt atgctaaaga atagcttaca 60
tatgttgtaa agcaacaagc atatcttcaa gaagtgaagc ctctcaata tgactccatg 120
cttattctac atgcctgaaa actgggcca cacacagggg cacacgtaca cgcacacaaa 180
cgcagatacg gacacacaga tatgcagacc gaaatgctga caccatcgct ctctagattg 240
gattagctct catttaaggc ttcttaggtg ccgcagtgcc cctaataatta ccaggattga 300
aaacagactt ttaggaagga gcagcattac ttcgaaaagt agtcatctgc tcttgtcctc 360
caatgtgtgt attttaacaa ataccattta attctatgtt gac 403

```

<210> 94

<211> 103

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA234634

<400> 94

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cagctcacgc gggacctggc cggcctcccg agtctcttca agcagctgcc cagcccggcc 60
ttcctgccgg ccgccgggac agcagactgc cggtaacgcg cgg 103

```

<210> 95

<211> 291

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA234996

<220>

<221> unsure

<222> (1)..(291)

<223> n = a or c or g or t

<400> 95

```

ttttttgaag cttcacacct ttattgtgtc cgggggcgtc cggggcctca ggggtgttcg 60
tagcccgtgg cgagaggggt cacgtggcta ttgtggaaca gagtgtggtt gccgtcccc 120
caggggtagg gcttggtgcg gatcggaggg tggttgtagg gacggaactc ggggcgcggg 180
cggtaggcag nantggagat aggtagttga aggtgcagag ggccacgctg ggcagcgcag 240
catcgaaggt cagcagacgc caggtacgag ctctgtctcc tccgtggcct t 291

```

<210> 96

<211> 139

<212> DNA

<213> Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA235310

&lt;400&gt; 96

```
tcaacaaata tttattgttc atcaaagacg agccagattt tatgggcatt tgtgatggag 60
gctggcctta gctttaggag aaggaactcc aagagcagta gtgatctctg agatcacctt 120
gttcaccctc ctcggggca                                     .          139
```

&lt;210&gt; 97

&lt;211&gt; 382

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA235618

&lt;400&gt; 97

```
acaatttaac aattttattac attacagtgg catcacacca gcagtcaata aggccactct 60
agggaaaaat ctttcagtat ttccatgaca cattctgttt acaataattc ataaactggg 120
aaaattcatt ctaagaaaac ttggcaaatg aaactttgga ctggaattgg catttctttc 180
tctgcttttc gttcccacca tttctttctt ttatactaca gtattcatat tttaaaatgt 240
tttaaaattat ttcagaacat taagatagca gttacatttt ttaatagtta tattatttta 300
aaatgactct ttaaaataaa gtttttagaga aactatatta tggatagggc tgatttacat 360
tttcaaattt tctaaaatca gc                                     382
```

&lt;210&gt; 98

&lt;211&gt; 175

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA236241

&lt;400&gt; 98

```
tttttttttt ttttttttcg gcggtcaacg cgctttattc cgagggggctt cagatacaga 60
tgaccccgag cctgcatccg cccggaagcg tccccttact cccatggggc acctcgatac 120
cagctgcctt gccctgactc acttctcagc acccatctta cggcagtcgg ccctg      175
```

&lt;210&gt; 99

&lt;211&gt; 401

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA236455

&lt;400&gt; 99

```
tttttacgaa accaggttta ttaaaatttc tctacaagtc agaaacggcc atctcactgt 60
tcacatatat acacgtatgt acaggaagaa cctagtgttt ctagctttcc cggcagaagg 120
ccctgccagc ccagagtcct tagtcggata atgtatcaca gatacaacag tcgagcaacc 180
acgagagcgt tagtgcgaca gaggcctctg tctccctct tctcaaagtc ccatgattct 240
gtcaaggtaa tattgccaat aatcattcac atttcacgtg gtttttagaca cgcagggttat 300
tcagacagac acagacaaca aaacaagcct caaagccaga acaaaacaaa acaaaaccaa 360
atcgaacata ggtataaaag gtaaaatata tgtacaaaag a                                     401
```

&lt;210&gt; 100

<211> 533  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA236476

<220>  
 <221> unsure  
 <222> (1)..(533)  
 <223> n = a or c or g or t

<400> 100  
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 aaaactatat tgtgtgatat aaatagttta tttacattac agaaaaaaca tcaagacaat 120  
 gtatactatt tcaaataatat ccatacataa tcaaataatag ctgtagtaca tgttttcatt 180  
 ggtgtagatt accacaaatg caaggcaaca tgtgtagatc tcttgtctta ttcttttgtc 240  
 tataatactg tattgtgtag tccaagctct cggtagtcca gccactgtga aacatgctcc 300  
 cttagatta acctcgtgga cgctcttggt gtattgtctg aactgtagtg ccctgtattt 360  
 tgcttctgtc tgtgaattct gttgcttctg gggcatttcc ttgtgatgca gaggaccacc 420  
 acacagatga cagcaatctg aattgttcca atcacagctg cgattaagac atactgaaat 480  
 cgtacaggac cggaacaac gtataganca ctgtagtcct ttttttcaca gtg 533

<210> 101  
 <211> 308  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA236545

<400> 101  
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 ccaagtggct gggtaatcta tgggttatat tttcatttac cctcaaagct aggctgccag 120  
 tggaagctaa gaataacaca attaaattca agtttctcta gaaaatatga caaatcaaat 180  
 ttttaagaaag tgtaacttgt ggttttgcct tggttcaaga tggctgatct gagaatatca 240  
 aagcatttaa ttcaaactaa tagtgtgtcc tcacacctagg actagaaggt aatttttctt 300  
 ttaaggag 308

<210> 102  
 <211> 297  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA247204

<400> 102  
 agatacagag ataaacgagt acatgattat gatatgaggg tggatgattt ccttcgtcgc 60  
 acacaagctg ttgtcagtgg ccggagaagt agaccccggt aaagagaccg ggaacgagag 120  
 cgagaccgcc ctagagataa cagacgagac agagagcgag atagaggacg tgatagagaa 180  
 agagaaagag agcgattatg tgatcgagac agagaccgag gggagagagg tcgatataga 240  
 agataatggg cttttggaag cactgattgt ttaaagatac aaaaaatctt gtatattt 297

<210> 103  
 <211> 342

<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA248555

<400> 103  
attcgttgaa ggacaccagc tgcggaatth gcggttttgg cagattgaaa tcatggcagg 60  
tccagaaagt aatgcgcaat accagttcac tggattataa aaatatttca actcttatac 120  
tctcacaggc agaatgaact gtgtactggc cacatatgga agcattgcat tgattgtctt 180  
atatttcaag ttaagggtcca aaaaactcca gctgtgaaag cacataatgg attttaaaact 240  
gtctacgggt ctaacctcat ctgtaagttc catgcctgga gaagctaata ccacctaata 300  
akgtgataat tcaattttgta caataaatta tgacctggaa aa 342

<210> 104  
<211> 458  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA250850

<400> 104  
tttttttttt tttttttatth tttttttttt tagcaaagaa aaagaactth tatttcttca 60  
gtagtttcta atgcagacaa atgtgacaag gcagggagct gagctgacct caagccgaag 120  
gtcccgaact ctctcgggag cctggaggag tcccggtagc gaatagatca gatgcctcat 180  
cctcgttcac cccaaaaggc tgagaccctg gtgtgtcctc ctcgaggacc ctccctgttt 240  
ctgggtgcta gagggcgttg ctgtttctgt gacagaggga tggctttggg agctccaaag 300  
aacctaacca agttttttta agaaattcgg gggacgaagc aataaccgct tggccccctt 360  
gaaagtthcg ttcaaactth tttcaactgt aaaaaactgg ttaatctcaa attgtaaaaa 420  
aattttttcc ccccttatth tgaaaaaatg cattttttt 458

<210> 105  
<211> 410  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA250958

<400> 105  
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ggacccaaag gcggttgccg ttcgctggct cgaatgcctg ggthttatatt gcaatccttg 120  
tccctcccac tgtgctcctc aggcaataga tgattggcta tttctttacc tcctgttttt 180  
gcctaattag catttttagtg agctctctga ttggttgggt gtgagctaag ttgcaagccc 240  
cgtgttttaa ggtggatgag gtcaccttcc cagctaggtt tagggattct taatcggcct 300  
aggaaatcca gctagtcttg tctctcagtc ccctctctca acaggaaaac ccaagtgtctg 360  
ttggtgaggt tggctgatga ccactctaac tgcttcctgc tgaactgggg 410

<210> 106  
<211> 372  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA251769

```

<400> 106
ttttttttttt tttttttttt tttttttttt ttgatagcca aaagcaattt attatagttt 60
agcctcaaaa aaataaaaaat aaaaaaatta tccagtgggt atgaggagtc taggaaaacc 120
tgtcccagta atgccaactt ggaggtgaag ggctgactgg ggcagctgag aagtgggacc 180
ttctgttttg caggcttcct ctcccttgcc tggcatgggt tttctgggtga gaagagtgtt 240
cctggccttg ctggaggttc ccatggcccc gaactaacag tgtttttctg aaatttcgac 300
ctgctccgtt tgagagagta gaattccctc atcaagtcct ccacctccca ctgctcttcc 360
ttcagcctct gg                                     372

```

```

<210> 107
<211> 389
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. AA252219

```

```

<400> 107
ccagaaatat ttatttggtca ctttctgtgt gctagaaaca ttttttatac gatgataaat 60
gaacaagact gacaatttct tgcccattaa gggttacatt ctaataagcg ataaagacaa 120
caataatacc agggagctga gtaatctaata acaaagcaag acaaagccag ggtcactgga 180
agcagcagtg gtctttctga ggaagttgca gctgatcacc aacctgaatg aagtgatgta 240
atggaaaata gaagtgtttg aaggaagatt gctttagtaa ctgaggagga gagaggaaaag 300
aggagaaaact gcacaagtgg gtagagatgg gaaagtccat ggccctatggg gaagggtgagg 360
aagttgactt ttatttttcaa tgtgccgtg                                     389

```

```

<210> 108
<211> 281
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. AA252528

```

```

<400> 108
ttatacttat gattagtttt attataaagg atacaaatca gctccacaag ccaaggaaga 60
cacagggaaa ggtctggaag ggtcttgagc acagtgtctc catgccccct cttcgtggaa 120
ttagggcaca ctgccctgcc ggcataagcca cagcttcacc acccaggaag ctatgctgag 180
ctttagtgtc cagagttttt attagggttt catgatgtac tgattaaagc actggccaga 240
tgattaaact cagcctccag tcccccgccc cataggtcag g                                     281

```

```

<210> 109
<211> 412
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. AA252802

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```

<400> 109
gctagggttg actggtacag ttctgtgtgt actggtgaat cggactcatt tctgcactac 60
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aggttccagg tgctgaaaat gaacaattac atacaggaat agaggcctac tctgcactta 180
aaaatatctt caaaaaagtt gctggtcaag gagtatgcag caatggtcct tcctgtttgtg 240
aacattgagt cctagtgggt gaggtgtggg ttgttactat taaaaatcct tgttgtattg 300

```

ggcacaagat agactgaaat tgactgtagt cctcacggtg agtctaattg cagcaacatg 360  
 tgaaaaaggc aggcaagagc tgagtcagga aaatagacaa gcagggtacc tt 412

<210> 110  
 <211> 326  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA255480

<400> 110  
 gcgcacaacc aacagcgctc ccgccccgtt tttatttgaa ttoggagAAC cagaggcgcc 60  
 tgcagattct ggaggggtct cgcctgcccc tcgctggcag cccgagatcc tggggagggg 120  
 atgccatact gctagagatg agggaaagaga gcccacagca ggaaaacatt gatttgctgt 180  
 aactctaaag ggcattctcat gccttcagtc caccgcctcc tcggggccaca gcccggtgcc 240  
 tcgcgcgggc tcagactagc tctggccctg ctgctgtcgc tgcagggtgt cgtcttcttc 300  
 ctggtggtcc tcgggcaggg gcggct 326

<210> 111  
 <211> 410  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA256268

<400> 111  
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 atcctacgtg atataagtat atatacaaaag aaaaaaaca cattggaata ttacacagct 120  
 tgaaggtttg caaagggttat ttgtgtctta gttatttctg cacttaatga cacatcagac 180  
 gcattgagta tatttcataa gttgttgact agcaaagata caatcattag taaccacaagt 240  
 cttcaaaatt cacaccaaac tttatgaagt cattcagaaa gagaaagtca atcctaaaat 300  
 taaaattggc aactatgata aataccttca aaaggatgta gatgtaatgg agatgtttta 360  
 aagtttagtt tcattaattg taaaattagc atgttatatt tactcaatat 410

<210> 112  
 <211> 355  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA256294

<400> 112  
 acaactttta aaaatggttt atttttttct ttaacaaaat cgtacagctt tctcaatccc 60  
 caaattaaaa aaacagaaaa caggaagaaa gggaagaagg caaaggccac acgcacaggc 120  
 cggcccgctg caccgcctg ctggacggca cttcagggca caaccacac gcgtcttttg 180  
 acttgagac attccgcgag gcttctggcc tctcgaaggc aaagcttttc agcgatttca 240  
 ttaatatttc attacgctga gatgagatga aggagatgc tacagaaata tgtcagttta 300  
 agccacagaa acagaacagc ttaagaaggg ctgggcgccc aagctcgtca cgaca 355

<210> 113  
 <211> 196  
 <212> DNA  
 <213> Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA257093

&lt;400&gt; 113

```

tgggtgtttttt tcaggccaga ccagaacatt tttatttggtt tagtcactta ggcattgctaa 60
gggtcccccctg gggttagggag atttcagccg tgagtgtgca ggtgtgcatg cacattaggg 120
ggatatctat tgggatgcag agaggtgaga gcagctcttc agaagcgctg gcaaaagaag 180
aatgtgtatt gaaacc                                     196

```

&lt;210&gt; 114

&lt;211&gt; 284

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA258476

&lt;400&gt; 114

```

aagctttacac tgagaattta ttggagggct ttgagacagc tcatgtaatg gaaagctctt 60
aagaactagg tttagaaggc gcagagacca gggcaacttc agggatccag gtagcaggaa 120
ggaatcggta gcctctttgg tatggccact atgggtggtag acactgtcta cgttgtttgc 180
tgagtcttct ggctttcttc cactcttcct gctcttgac atcagactcc aggttcttca 240
gcctttggaa tctaggactt gcaccagtgg gttggttgcc aggg                                     284

```

&lt;210&gt; 115

&lt;211&gt; 377

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA261907

&lt;400&gt; 115

```

gcattttcaat agaactagct ttattttactt atttatttat ttaaacaataa gaaatggttt 60
aaaagcaaat gcataatatgt accaagggat ggacatgacc tgggtacttac aaaggagctg 120
ctgtgtcata atggaaacag catattagga gaaaaatagt atttcgtgtg ctgtctgctt 180
gagtaatcaa tctggagatg caagttaacc gaagtgcac tgccaagcca tcagcgtgag 240
aaaaaaaaac caccagaagt tgctccaga taacgatgta gtggcagcat gataactggc 300
atcaactcac ggtcttctca ttttcccat tttctataat tttcctcttc ttttcatcta 360
tttttttctt gaagatg                                     377

```

&lt;210&gt; 116

&lt;211&gt; 181

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA278767

&lt;400&gt; 116

```

atacaaaatc agatctataa tttaatgcca ttttggttaa ttaaaaatac atgtacactg 60
gacactacta catattaggg agcatctatg caaataaaag gaaacatcaa attcattaaa 120
atgtttacct atgaggtagg ggtaagaggc tagatatggg agtaaggact ggagattaaa 180
a                                     181

```

<210> 117  
 <211> 419  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA279313

<400> 117  
 tttttttttt tttctttttt tttttttttt tttactgaaa gaaaaaaaaa tatttttttat 60  
 ttcagttaat cgggaagctt tgtcagagcc ctaccataa ggagaagaga caacagctgc 120  
 ctttattctt gttggtttgc tttgaatccg ctccgtgtaa agtcagctaa ctctctcggt 180  
 cacgggcgtc cggctgtcca aaggctcctc tctgtttggc cttggaatgg aggatgaaac 240  
 aatgtctttg ggctctccct cccctcggtg tttgtacttt tctggggccg ttgccccgtg 300  
 gcaaccggg gctgagtcct aaccgggtcc ttggggcaac cgtcgctctc cagtgaagct 360  
 tctctgggca acttctcctc tttggaaaag ctggtgctca agtcctgggg ccagggggg 419

<210> 118  
 <211> 513  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA279757

<400> 118  
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 tgcagtcact acaccactcc cgggcttgta acccatcaca gcctggactc ctttgggtcaa 120  
 agccctcaca ttctcttgat ggaaaaaagt tttgtcaacg atattttcaa tctgctttgc 180  
 tttttttatt ctgcctagct gcatttttat ttcactactg ttcattttgt tctctaggag 240  
 tcgctggtgt tgatgctgaa aagttacagg atctcttcca ggaggaggat ggagtagacg 300  
 cagcttacca ctgacatagt ccttcaggat gtagcgcgca gatcgaggct ggtctggctg 360  
 tccatgcgct gtcataatc ctcgcatgta tccataagct gtcaacagtt cttccgatgt 420  
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 ttctaaaaca tgtcttgga tattctggca aac 513

<210> 119  
 <211> 256  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA279760

<400> 119  
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 gaaagataat tcaacagcaa tcaatttaca gaatttagaa cagcactaca tttcagcaaa 120  
 atgcaactag agaacatcag ataaattata gtaatttggt tttaaaaatc cattaaacta 180  
 tctcttacct ctgcaataat gtatcatata tgcagttaca gaagttagta gggaaaagca 240  
 tgatcttctc tcccta 256

<210> 120  
 <211> 367  
 <212> DNA  
 <213> Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA280929

&lt;400&gt; 120

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cccttttaaa cattttatatt tgaaacaatt gcagatgtac acaaaagttg taaaaatagg 60
ccacagtgtc cccattttgt ccttatatca gatttcccat ttgtgagtga ttctgaacaa 120
taagttgcag acatcttgac ccactactcc ttactattcc agtgtctatt tcctatatac 180
aaaggggaatc taccaggtaa tcatagtaca acaatcaaaa cctggatggt aatactgac 240
caatatgaat ataggatcct caggtgccat tcaacatttt gcctcttctc ctttatattt 300
taaaattata tatgactact tacatttttc tagaagaaaa aatagaacaa taaatcacia 360
aatgcc

```

&lt;210&gt; 121

&lt;211&gt; 427

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA281145

&lt;400&gt; 121

```

aacagtgaga tccaccttta ttgaaacatc acacggcagc atcaggggtc ccacacctca 60
cagggcagca ggcagttcac aggacagcag gcagttcaca gggctttggg ggcctcacag 120
ggcagcaggt ggttcacagg gcttcggggg gcctcacagg gcttcggggg gcctcacagg 180
gctgcagggg gttcacagag cttcaggggc ctcacagagc ttcaggggcc tcacaggact 240
gcaggggggc tcacagggcc ctgtatgcag ggctgctggt acaaagaaga ggcccagaga 300
accctaacac agcctggggc cccggggaag tcagggcttc cagcagggca ggtacagagg 360
cccctaggac ttggcaggag ctcagccttg gggacagtcc cacggaagac gctgcatccg 420
ggctctt

```

&lt;210&gt; 122

&lt;211&gt; 257

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA281345

&lt;400&gt; 122

```

ttactcttat gggtttttatt ttcctatctg acattttctaa cattagccat gtagacggag 60
ttaaaaagaa tccaccgcac gaaaggtaaa caaagcagac cctcagaaac tccctggcaa 120
ggaagaaccc ctcccagat tggcccagtt tcaccagcaa ctgggtctcag ctcagcctta 180
tgcttttcca ctgacacccc ccacccctcc acattctcga tgattcagac caggaacttc 240
tcggctgatt gtgtccg

```

&lt;210&gt; 123

&lt;211&gt; 365

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA281591

&lt;400&gt; 123

```

tttttttaat tattccttca tattcaaact tcacaaacag tgtgaacttg tacaatacct 60
cggaaagtga aacttacaaa aaaagtgtg gtaacattta aaaaaaaaac aacaaaaacc 120

```

```

ccaaaaaaac aaacatcatt cttagcaaca tcaattactc ttccacacaa aacagaaacc 180
ttgtaaaatt tatttttcgta tttttaaggc gtaatacttc cgtataaagt atatgcaaga 240
gataaaactt cacagtattc caaaaatgtca caataataat aataatataa tagtataatg 300
aagcgctaca gttaatTTTT ctttttttga atgttttttt tcctgtttta ataacaaata 360
caagt

```

<210> 124

<211> 369

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA281599

<400> 124

```

gaaaaggcat acaaatttat taaggtagag ggctgaggac cacagaatat taccccaacc 60
ccccagtggg tacagaagct tatatactct ttctcagagg caaaagagga gatgggtaat 120
gtagacaatt ctttgaggaa cagtaaatga ttattagaga gaagggaatgg accaaggaga 180
cagaaattaa cttgtaaatg attctctttg gaatctgaat gagatcaaga ggccagcttt 240
agcttgtgga aaagtccatc taggtatggg tgcattctcg tcttcttttc tgcagtagat 300
aatgaggtaa ccgaaggcaa ttgtgcttct tttgataaga agctttcttg gtcatatcag 360
gaaattcca

```

<210> 125

<211> 375

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA282247

<400> 125

```

tttttttttt tttttttact tttagttcac attttttaaat gtttaaaaaac tatgttaaca 60
gagcagttat agaacagaac ttcttatatt tctttattta caccacactc tgaaaaaaaa 120
aaccagttc tatttgatta actatgaata gcaaagtttt gtgacttgtg actcacttaa 180
atcaccatc tgaaattcat ttacaagggt ttacatttaa taaaacagta gtgtggtaca 240
tgtattggac tcagatgaag tctaaagtac actggactct agagagtgga ttacatacca 300
acgaccaaga ttcaagtgtt tggggaaaaa aataccttag acagtctatg ttggcggtcaa 360
cactaaaata aaagg

```

<210> 126

<211> 242

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA284153

<400> 126

```

tgcacaaaaa agagcagtaa aataaatact cagaactttc ccagggtgtc aactattaaa 60
ataaaacctc agcatttcaa aaaagcttat tccgctgcag gaaagaagggt ggacattttt 120
ggtaccataa taaatcacac actcacacat ccatattgct taggttgaag agaacggaat 180
gaacagagga aatttcttcc atgaattgcc ctcttttcgg taccgcgcat gttttagtta 240
cc

```

<210> 127

<211> 428  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA284879

<400> 127  
 tttttttttt gattagtc aa atattttttat tttgccaaag aactctaaaa gccttttggtg 60  
 attcccaa ac atacaatgaa ccccaaataa aacaaaacca aattgcacta ttacaaagga 120  
 acaagtccat gaaagtagag aggaggcgcc agttaaggga cagcaacttc aaggagacgg 180  
 ttgttttttc gttttacatgt tgggacactc ccattttttct ggtttccctg aataaaacttc 240  
 acacatactt tgtccgggtct gaacagggtcc agggctccac cggaaactcc aatattgagc 300  
 ctccggttgg gttttggccta aaattttttgc ggaagaacct ggggtgggcca tttcaaacca 360  
 agtggatccc tcctgaaaaag aaaagttccc ttactaactg cttctgagcc ctcctttaag 420  
 tggacggc 428

<210> 128  
 <211> 425  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA284920

<400> 128  
 ataaagattt cctccaagcc acatgaggac tctggcacc acccacaag caagacctgt 60  
 atttataagc cgagggtcag ggagctaact gcgggacccg tcagccccgt gtacccatcc 120  
 ccgtccccac cccccctcc accgctgggc ccatcagtgt gtgttggggg gatgcttgca 180  
 gctgggggtg aggagacaac aaacctcggg aactggagcc agagctgcgg cctgactgac 240  
 gccttttgat gctcacggga aattttctgcc caggatctca gcccaggct ggttgtttct 300  
 acaaactctc ctcaaagtga ttatttttgt gacaaaaatg aaggagcttt gtaaattttt 360  
 ttaaaattat gaatcatatc aagtagttgt ttacattttc tgaaaaaata ggaactcggg 420  
 cagca 425

<210> 129  
 <211> 405  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA287389

<400> 129  
 caaaataatt aaccttttta atttttttaa ggaaaaatac tctccatagg aaggcatttc 60  
 tattttttgt ccatcagtag ccaaattggaa cttgatataa acacttccag tatgccaaact 120  
 ttggtttaat gcacaacttt gaaaataact cattaaaaca cacatcaaga tgctactaac 180  
 aaattcatta atatccaaga ttcattactg tatgtcaaag gtcacccagg attaacattt 240  
 tcattacaat gaactgtgaa attccaatga aaaatgtttg cctgaattaa attattttaat 300  
 ctctcaaatt ggaagtctag cactcttgaa aatcaaattc acacacacac agacacacac 360  
 acacacactt acaaactgca cattaggaca tgagggcaat ttaat 405

<210> 130  
 <211> 478  
 <212> DNA  
 <213> Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA287832

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1)..(478)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 130

```

cacacacaaa tcctgattta ttccctgttt ctcatacatc gttggcattg ttctacttaa 60
acagcgcacag tgatgactcc aaaaaaaatg tttagaatta gaagtgcattg ttaattctgag 120
taacttaagt acagaaaaga gttagtacac cacaagcatt ttctacactt ttattttgtg 180
gtgattgtga gacaaacaca gtccaaacaa tagacttctt gtccctcccc tcccaacaac 240
tatctgactc catagctcat gcaccccaat tacagcaggt gtcgggctgg cataaaggct 300
tcttaccagg attccagttt atcctttctca atccttttct catctctaac aaaaatgcc 360
cacatacatg tagttgtgag aggcaaagtc ttcttttacac tcaccaccag ggnggcgtat 420
gggagcacaa aagcctcaca aaactgctcc aggatcctgc ctcttccagg gccggaat 478

```

&lt;210&gt; 131

&lt;211&gt; 216

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA291676

&lt;400&gt; 131

```

ttacttacac ctttctatatt tttattttttt acatcaaaca ggtaatgtga tgatgctgta 60
acaaggtttg agggaagcat atctgacaca tgagcatgaa accaaatcac catgcttatg 120
gactacaaaa ggacctaagc cttttaaact agactgtctc aactgtgcat taattatgta 180
tttagatata ggatatgtgc ttgggaaaat gtataa 216

```

&lt;210&gt; 132

&lt;211&gt; 431

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA292328

&lt;400&gt; 132

```

atagagacag ggtcttacta tgttgcccag gctgggtattg acctcctggc ctcaaacgat 60
cctcctgcct tggcctccca aagtgtctggg attacaagca taagccactg caccgcggcg 120
agaggggttt ggaatgaagg tagaggcagg gggatgaagg cgccagagct gaagaccagc 180
ccccagaagc cacacccttg cccttctagc agctacgggt cctctggctc cgggccttgt 240
aaacctcgat gagcagggtc ttgacgtact ggatctcgcg ctccacggac tctgcccgtt 300
ccttcagctc gcgattccgt gcctccagcc cctggaactc gaccctccag ggcctcacc 360
tctgcccgtt tccgctggcg gtacctcaga gccgcccact tgttctggtc tctctacttt 420
tgcttgccgt c 431

```

&lt;210&gt; 133

&lt;211&gt; 318

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA293187

&lt;400&gt; 133

```

atggtacaaa aatagtttat tacaaaagaa atccaaccaa aatgcttaat aattttacatc 60
gtgatccgtg cccgtttacgg cccacctctc ccctcctcag ttatctggta gagagtggag 120
gggagtggct gttccctggg tccaccagct ctgggagggg acatggaaat ggaagatgtg 180
ggtggcattc cggacagggg ctggtgcctg agaatgctgg ggtcagagtc ctgggagggg 240
gcgagatggg ggaacatctg tgctcagaag aggggggtgta tgggtaggtg catgtgcttc 300
tgtgcaaadc ctggtccc                                     318

```

&lt;210&gt; 134

&lt;211&gt; 424

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA293489

&lt;400&gt; 134

```

tttttttccg tagtccaaag gctttattgt tctgctgaaa tgcttacaaa tactgaaaac 60
ccccagcctg ggcccaggca accaagggtc caatgctggg aaggagagca ggggaggtgg 120
gcttagtggt aaggcgtgaa gggcgaggcc agacagctgg aggcctggtc ctccactctc 180
catttccatc acccttcgga ggtggaagga agggcgccgg caccacaggg cccttccccct 240
ctgctgcctc atctcctgct caggctttct ctctaggcgc attggaggaa tcctctttcc 300
ctgtcggaaa ctcaacactg tacagaactc caaccataac ctttctagct tcctctccca 360
actgcctcgc tcctcctctg ttccatagat cccccggctt catcccttct ggctctaagc 420
aagg                                             424

```

&lt;210&gt; 135

&lt;211&gt; 340

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA298981

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1)..(340)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 135

```

attcggcacg agtttcaaag aaaatagatt aggtttgcgg gggctctgagt ctatgttcaa 60
agactgtgaa cagcttgctg tcacttcttc acctcttcca ctcttctct cactgtgtta 120
ctgctttgca aagaccggg agctggcggg gaaccctggg agtagctagt ttgctttttt 180
cgtacacaga gaaggctatg taaacaaacc acagcaggat cgaagggttt ttagagaaatg 240
tggttcaaaa ccatgcctgg tattttcaac cataaaagaa gtttcagttg tccttaaatt 300
tgtataacgg tttaattctg tcttgttcat ttgagtattt                                     340

```

&lt;210&gt; 136

&lt;211&gt; 535

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

<223> Genbank Accession No. AA308998

<400> 136

```
aggctctact tcaggtgctg ctataatgcc tcatctaata aggactaaat tgtgtaggaa 60
actgcagtgg gaagaatatg ctttctgctc aggctaagag ggtcactgat ctgtccttag 120
aaattcagag taacatgagc aaaacctcag ctaaaaccca ttttaagtggc atggattgtg 180
catgatcttt gataagaatt cctcatgtac ttgtgcctag tttttcaagg tattggctgt 240
tctatagatg cagtgattgt cccagctagc tctgttaccg gccttttggt gtgtctttat 300
gttcatttgg agagtcaggg cgaaagacag gtgatgtagc acttctgttt ttaataatta 360
ttgcttaaaa tacctattaa tagttttggg tcatttaaag ggacttgagg aagctaccca 420
ggattacaga agagtgtcca cctaacaaga tgggtctggc gtttcctagt tttgtatctg 480
gttcaataga aatatgtgaa agtggtaatg tcatcatttg atgcagagtc cgggg 535
```

<210> 137

<211> 324

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA312946

<220>

<221> unsure

<222> (1)..(324)

<223> n = a or c or g or t

<400> 137

```
gaagttaaag gncactttat tnactgacag attgaaaact gtaactccag gnagtgcaaa 60
atgcaccaca acccaattac aaagaacagg tggttaacaca caatgtttta acaatgctac 120
actcattttt ggcaaagtgc tgtattgttc agtctgtgta caaaactgac catctatgan 180
ccaatcagta taaaaaattt ctataaaanc aaaatttagc cagtggctca agaaaacaag 240
ctgccattta tgcatagnnt gatgtacagn aacctaacca aatgtccctt ttgaattttc 300
aagttactga aaaaaaatgt gtcg 324
```

<210> 138

<211> 428

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA316686

<400> 138

```
gggatgtgga gctggagttg gagactgaga ccagtggacc agagcggcct ccggagaagc 60
cacggaaaaca tgacagcggg gcggcgggact tggagcgggt caccgactat gcagaggaga 120
aggagatcca gagttccaat ctggagacgg ccatgtctgt gattggagac agaaggtccc 180
gggagcagaa agccaaacag gagcgggaga aagaactggc aaaagtcact atcaagaagg 240
aagatctgga gctaataatg actgagatgg agatatctcg agcagcagca gaacgcagtt 300
tgcgggaaca catgggcaac gtggtagagg cgcttattgc cctaaccaac tgatgcgtgc 360
tttctcaaata atacctactg gattaattta tggcaataaa attttttttt gtctttttca 420
gttttatc 428
```

<210> 139

<211> 160

<212> DNA

<213> Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA328993

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1)..(160)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 139

```

gcttttagagc agttatggga gttatagatt ataacatatt agtgatttgt gaaacttttt 60
tactaaaatg tgaccctcat tttnctttac atgaaagaac atagaatatt tcacaatgca 120
tcccacgtgg taagaataaa aaattgtttt agttatatgt 160

```

&lt;210&gt; 140

&lt;211&gt; 359

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA342337

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1)..(359)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 140

```

agagataacc agtttatttt ggggagcaaa gagaaagggt ccctaacccc agactgcctg 60
cgaagagggtg aaatggaatt gaatgggatt atgggtcagcc aaggcttcct agtggagctg 120
ctacctganc tgagttttta gaggggtagg aaagaaaaaa tgtagtgggt cataatggca 180
ttccagatac aggggacaca aacagctctg tgtttatgaa ctacaaccag ttgttgactt 240
ttgtttcaag tggtccccc tccccagtgc tgtgtggacg atggactgaa gaggagaagg 300
ctgggagcaa gggaccagta agctgttgca gcagtgcagg tgagatatga ggcctcaac 359

```

&lt;210&gt; 141

&lt;211&gt; 346

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA347359

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1)..(346)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 141

```

gtgttgcaaa gcctttaatt agaatgtttg ttttttttac atcatgcata acttcacatt 60
tgtgattaat tagtaattat ttcaatactt gtaagcncat ctgcctcaga tttaatcata 120
atacatgaat taaattaatc aaattaagga acagcaattt agaaagaaac acactttaag 180
aaatcaaaat tctcaattca ggcagtctgt ttctatcatt tggatttcta ctccctttaa 240
aatttcatat tgcccaacaa aaagtgggta tttttactgt ttttggagat gactgaacag 300
atgaagggca tcagatgcct tcatcagctg ggtattttgc ctaaga 346

```

<210> 142  
 <211> 196  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA350265

<220>  
 <221> unsure  
 <222> (1)..(196)  
 <223> n = a or c or g or t

<400> 142  
 caatagcaga cttttaatca atgccagaga caaagtgagg ccgagctaag aacacgctca 60  
 gctncgttac aatgaagaaa tggtttcctt tcgatgcaaa gtataattgt aaaccacagt 120  
 gctcgcacag ttcacgncgtg nttaaagnga aatcttagcc atacatcacc taaaagtaat 180  
 taaaaagtca acacag 196

<210> 143  
 <211> 286  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA358038

<220>  
 <221> unsure  
 <222> (1)..(286)  
 <223> n = a or c or g or t

<400> 143  
 cagggtatatt ctctttctcc tttttaatgt agagctgcag atacacttaa gttgccatag 60  
 taatggcaga aggaggggaag ggtgttttct ttgtaaaatc attggngtat acaggatggc 120  
 ttggcaggta acaacactat ttctacgata tctacttatt aatataattt tatgttaata 180  
 tcccattctc ctcaccataa tcaccataat gttcaaattt taattttgta ttcattttga 240  
 atgtttgcat gtgaaaaccc aactaatcta ttatttcaac attaaag 286

<210> 144  
 <211> 287  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA374109

<220>  
 <221> unsure  
 <222> (1)..(287)  
 <223> n = a or c or g or t

<400> 144  
 cgccgaccat ctctgcactg aagggccctc tgggtggccgg cacgggcatt gggaaacagc 60  
 ctctcctttt cccaaccttg cttcttaggg gccccgtgt cccgtctgct ctcagcctcc 120  
 tcctcctgca ggataaagtc atcccccaagg ctccagctac tctaaattat gtctccttat 180

aagttattgc tgctccagga gattgtcctt catcgtccag gggcctggnt cccacgtggt 240  
 tgcagatacc tcagacctgg tgctctaggc tgtgctgagc ccactct 287

<210> 145  
 <211> 292  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA380393

<220>  
 <221> unsure  
 <222> (1)..(292)  
 <223> n = a or c or g or t

<400> 145  
 catggagtca gggacatggt taattcattt gtgaatcccc tggtagtggc acatagaaag 60  
 cgtcccatat tatctgcaaa atgaatgant gaataaatga gcaagtaggt gaatgantga 120  
 ttctnaggct tcctccagct ttgatggcct atgaccgtgt gactcctgca tatgcatgan 180  
 cacacagaca cagacactac acacatgcac agacacacat acacacttgg ngcaaagagg 240  
 gatgaagcct gccacactgc aggtgggtcct agctgcctga cctcccttcc tt 292

<210> 146  
 <211> 255  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA382275

<220>  
 <221> unsure  
 <222> (1)..(246)  
 <223> n = a or c or g or t

<400> 146  
 aaataataaa tgaaagattt tattcatctt tgtagataac aagcactcaa aggttaatga 60  
 gtgaaggaga taaccatctc ctccaaacaa agnggctctt aataacgcag aagcaaaaat 120  
 ctttccactt ttagatgaaa acaaactaaa aaataacttc aggcttcaga tatggaaata 180  
 aagcaccatt tttcaaattg tagacttggc ttacttaaaa taagtaaata gccccgnc 240  
 atctgaaaaa gaaaa 255

<210> 147  
 <211> 407  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA386264

<220>  
 <221> unsure  
 <222> (1)..(407)  
 <223> n = a or c or g or t

```

<400> 147
ttattttaata actgtagaaa tccaaaagaa ttagcatcaa atcttgaagt cgtgagtnaa 60
gctgcgggtt ggcttgactg ggctcagcca ctgagctgcc tcaaccggcc aaggaacggg 120
attatgatga ctatgcggac ttctatatgt tcttcattct attgtgtgta ttatgtattt 180
agtttcaata aagcatttgt accaatggct ctggagcttg gaggaagact aaaggaatgt 240
gtagtgattc tgaagtaaga ttagaccta cgcagcagag ctatggggga gaagattaac 300
aaagtccttt cttccaatat caggatagtc atgagttgca gtcccatcca aaaggtcatt 360
agggctnaaa ggccctctgt gtctctgaac tatgagattc ttgctcc 407

```

<210> 148

<211> 205

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA386386

<220>

<221> unsure

<222> (1)..(205)

<223> n = a or c or g or t

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<400> 148
ggnggtaaaa ttncacttt atttggccaa tgtgttcaat tcgattgtna aatagaaatg 60
cctganganc tgnagcgtc tgattcagct ccagcatcct tcttcaggcc aaagaactcg 120
aggatgcgct ggttgctcgt gtggtcgtcg tcgatgaaga tgaacaggat cttgcccttg 180
aagctctcgg ctgctgtttt gaagt 205

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<210> 149

<211> 440

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA397919

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<400> 149
ttttctgttt aagaacagct ggtttattct tttgatttat tgtaggattt aaaagtttct 60
tttgtgagat ggcacatagg caggtttggt gtttcctaac actatgaata tcttaaattg 120
cttttgaaag ttttatccac aaagaaagaa aaataaggggt ttctcacag ttgaaaatag 180
tttttgaaaa aagggttaaga ggaaaaaaat ctaaatacca tccttgataa agaaatggaa 240
cttcaagtta aaaatacaaaa tttaaatgaa gttttataaa atattaaaaa ctactaaaa 300
gtacatgcat aggcatttaa tcaaggtaag aggaacagca gtggaaactta aatatgatac 360
aatttatcaa caataaataa acatttcagt gcaaatagtg cagaaaaatt tctcaaagat 420
catagcaatc attctaatacg 440

```

<210> 150

<211> 425

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA398280

<400> 150

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tttgcgtggg tcattctgat ggtggctgct gtcagcctcc aagtggctta tgggatagga 60

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caacccccca ggcacttcac ttaggacag ttagcaccaa gagctaaggt tgtgagataa 120
tgcaaactctg gcctgtcacc tctgcagagt acagggttccc atactgtgag gcagcagcag 180
cagagggaac caccagagaa acagcatttc agaattgtct ttcccttggt gtatggatat 240
gtgtgtgttc tagtcttttg tgggcaatgg aatctgcagc tccatgacaa tcttggttaag 300
tagcttatgt ggggaagtgtt tcaggtcaca agggccaccc attctaaggc ttctcactta 360
attccccagg ctaagagaca ggtggggaaa ggaaaaacct agcaccttgc tatactgaat 420
tgga                                           425

```

<210> 151

<211> 382

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA398903

<400> 151

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tttaaattag tagagacagg gaatcttact atgtgaccca gactgggtctt caattcctgg 60
gctcaagcga tcctctcgcc tcagcctccc aagggtgggt tatatgcgtg acgcgctgtg 120
ccgggtcca aagaacattt cttaagattg gtggtgcaag gatcacacct tgagaaacac 180
tgatttaggc cttcccacag tacaagaaa tgttgccctgc cccatcctta cagcacacct 240
gatgacttac aagaggtgct gctgaattcc tcccaggaa gcaaccttaa ttctctcag 300
caagacaagg aggcagcctt caggaaggac ccaggagctt ggtattagag gatgatccaa 360
gtctgatggc aaatttagag tg                                           382

```

<210> 152

<211> 449

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA398908

<400> 152

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tttccagatt tataatttaa tggctgtgca gatcccagtc cctcatttct gtcgctcacg 60
tgccactgg tctgggggtca gggttttctg ttcaaaggca tggatgtgag ggactcttct 120
gctaggcacg cgttcaccag cctgtgtctc tgaagcagcg gtttcccctc gaacttgccc 180
gacaccacca ggaactcgaa gctacaggag caacggttga gggtcgtgtc ctccacctcc 240
acatgctccg cctccaggtc ccgctgcagc ttctcgcgga ggtattcggc gctgagttcc 300
atggggcgag tccagctgga acggcagccc agcagggaca caaccccagc tcgggcgcgcg 360
gcacgctacc ttgctgcctt acaggagcca cttcgcgtgg aaaactcact tccgccttac 420
taaggcgtac gtcaacgcag tacttccgc                                           449

```

<210> 153

<211> 333

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA399273

<400> 153

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tttttttttt tttcagaact atctgatatt tatttcccaa tattttgata cttgttttac 60
aactggaata catggaatga aggggctgat atgggacccc aggtaagagt gaggtcagga 120
ctctctaagg gtctgggggt ccccttagag ggactttggg catccagttt cagggactga 180
gccgggttgg gtcggggggc agcatggcat cggacgtggg gccgtctgtg cctctcctgc 240

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ctgcggtaca gccggcgagcag gtgtttccga acggcccaca gcaccaggta cacctcccac 300  
agcaactcag cctccggaggt cttcaaaggt gac 333

<210> 154

<211> 467

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA401433

<400> 154

ttttataaac tttattacgg aaaatgccaa acatacaaaa atagagatga acatatataa 60  
tgaaccatca ttttagccat caccagctt caacaattat caaggccaat ttcgtttcat 120  
caatatttcc aatgcactta acatccagac ttattatttt gaagcaaatt ccaagaatca 180  
tatcatatca gccacagatg tttgagaatg tagatgagga cccttctttc taacataatg 240  
ataaaaacat tattctaata ccaaataccc caccaatggt caaattaccc cgattgtctc 300  
ataaatgtat tcgtttttaca gttcgggtcaa atcacaattc aaataagatc caattaacaa 360  
ttggttaata tgtctcttaa gtctctttaa atctataggt tcctcctcca tctttcatcc 420  
ttgcaagtta tttacagaag aaactaggtc atgtgtcctg tagtttc 467

<210> 155

<211> 378

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA401965

<400> 155

gagagcacia ctccaaatca tcttttatta atataaaaag ggcatattta gcaaaagaca 60  
cacagataaa agagtcacta tggctcagga cacaaggcag ggaggtgcca ggcctgtgcc 120  
cctgctgggg gagaaggagg ctcgggacaa agtgggagaa gtgctgggaa gggctgagcg 180  
gtagggggcca caaaagtcc ggtgggcaac actgtcggca ggtcatgggt gggactcatg 240  
gggacctcgc tgctaactct tgttgtgggg ggggtgtcctt agtgtgcca cctggagggc 300  
cactccttgg ttcttgagg ggacccacca agggacacag gacaggaagc ccaggatggt 360  
tagtgcaact cgggatga 378

<210> 156

<211> 641

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA402000

<400> 156

tttttttttt gatacaacta gcaaatgttc attggtttac aacaaacca aaatactcat 60  
caaatatggg ctgttggatt tagaaaaata agattcttga gcgattccag ctgcatttgt 120  
ttatacagaa cacatttact caggaccctg cagtgtcagc ttcgttcttt gggatgagc 180  
ccttctatct ggatctctgc aggccagcca gaatatctgt tgttcttagc atcagagtgg 240  
ttgatctttt ctctctgaat ttccgaaggg agttccaagc cttttgctgc aataaatacc 300  
cagctagacc tgaatttcat gttcctgatt tctttacttc caagtgtctc tatggcattc 360  
ttggcatcgt tattcagctc tgtgcttccg tcgtcatagg tcacatgaa gagcagggat 420  
tttgagcag cactctgaat aaactttgtc atcgggtccag agttatcgcc ttcatacata 480  
tcaaaacatc gtgttgcctgt cacattccca gttacatagt tgacaatggc aatgtttatt 540

cctctggcaa catttcccag ctgttctccc ataagtaggt tatcctcaaa gcagattttg 600  
gcgtacttgc ttctgccacc tccgctgagt aacctgtagg c 641

<210> 157  
<211> 290  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA402224

<400> 157  
tttgtttcta aaaagtttat tgtaaaattc aaagcttcaa cagcagcatc ctttagaaaa 60  
cgaagcattg cccggatccg ttttgaaaaa gcagcgcagt cggctaagtc cttcacgctc 120  
ctgcaactgt accaagtcca gggcgccgct ccttcctgcc gagcgcaggc tgctgagtca 180  
cgcctgcccg gccagttctgt ccttcctggc cctgaggcca acgtcctagc ctaggccttc 240  
ctgggcgagc agccgctcca gacacttgca gagtccctcag ctccgaccag 290

<210> 158  
<211> 269  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA402903

<400> 158  
cccagggcag tgggtgggtgc tttattttcca tgctgggtgc ctgggaagta tgtagacggg 60  
gtacgtgccca agcatcctcg tgcaaccgga gagcccgagg aggggctctg cggccgtcgc 120  
actcatttac ccggggacag gagaggctct tctcgtgtag tggttgtgca gaccttatgc 180  
atcacgggca tgagaagacg ttcccctgct gccacctgct cttgtccacg gtgagcttgc 240  
tatagaggaa gaaggagccg tcggagtc 269

<210> 159  
<211> 359  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA402930

<400> 159  
gatttgcattg ttgggtcaac tcttttttaag tccaaggagg cagtccacat taagtgtgca 60  
ggcaaaaaag agatggaaaa aggagtcagt ttctcccctg cctccctctt cctcccttat 120  
caagctgagc accttgagtt gcatttgagg aaatgaaaac tatagggtgac gcaaccccat 180  
tgtgtcgaat tctttcttta catttttttg gttgctacaa ggaatcagta tttttttttt 240  
ttaatcagat ggtgtgtgtg gtggctcaca tctgtaatcc cagcattttg ggaggccgag 300  
gcaggaggat cacttgaggc cagaagtttg aggctgcagt gagttatgat catgccact 359

<210> 160  
<211> 394  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA403159

&lt;400&gt; 160

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ttttttcattg tgcaatacac tttttattttc cttttacott tgcagtcac ttcgagtaat 60
cgttgtgttaa acaatagaat ggaatgaaat tacattaaat tgtatgcaaa tggctctaga 120
acaccttaac aattatgaca aggcaattat aaataacttt ttttcottag taatatatat 180
ttgcttttttg aagtacatta aagagctgcc atatctaggg ttagctagga aagagcaatg 240
gtaccatcct gggagccac ctccttgaaa gattagactc caattttcaa aatcctaagg 300
tttactagtt ccataatata cagtcaagca gagggctact tgggttgaaa gtattgattc 360
ttgaacctta acagcgtttt accttttagt catt 394

```

&lt;210&gt; 161

&lt;211&gt; 376

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA404957

&lt;400&gt; 161

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tttaatgaaa atagaagttt tctttctgtc ctcctttctc tcctccttcc ttctcctttc 60
cggatctttc cccaaataat tttctaataa ttcagttgtt ttctgaatat tgcttttaag 120
ttttttgatt ttaaagatac aattagaaat aatgtatatg atgaaaaagc tgtttccac 180
tccaattcag atctgtgac tacactggga aaaatgacca ctctcatga agttttgtta 240
ctgacctctc ttggacttta gctctccatc tctgctgagg ggatatgaag gtatttgcac 300
ttctcctggt aatgaaggga tcttagaaca gaaaataaat aaatgcagtt ttagcgacac 360
atagctggaa atattt 376

```

&lt;210&gt; 162

&lt;211&gt; 207

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA405488

&lt;400&gt; 162

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tttttttttt tttttgacgg ttcttatata acgtttattt ctggaagtta aagtagatac 60
agcaatatac caaaaaaaaa aaaaaaaaaa aaagacaaaa aacctcaca taatataaat 120
ttttacacta tgaagtacac attggaattt gaatgcagtg gccaggacag cagcttataa 180
accaccttat aggtaggtta gcaaccc 207

```

&lt;210&gt; 163

&lt;211&gt; 348

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA405559

&lt;400&gt; 163

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ttttttttta aaatattctg atgggttttat taacaagtat ataatatata ttgcatactg 60
tatatagtat atgaggactg tacagtacaa atttatgttc acagtttgac atgacaaaat 120
gtcattactg aattcccat ggactacaga gtagaaacag agaaggtaca ttaaacattc 180
acatcttttag taagaaagat taccaaaatg tttcagtatc tgcaagtata ctaacgcatg 240
ctaaaaacct ttaccattc agtcttatta gcttataaaa tatattacac tttattaaaa 300
atctctgcat agtttatata agtattaaag tactgtaaat gtaataat 348

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<210> 164  
 <211> 359  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA405616

<400> 164  
 tttttgtggtt ttttgtgagt tcaagtgggtt tatttggagg caatcccagg aaacattagt 60  
 aggagagcag caggaagaca gagcaaggag gaaaggcaat cttttgtgta ttaataggca 120  
 gcttatcaca tgagcagcta gagctccatc caactgggga cctttggaag agagtgtaga 180  
 acacatctta ttcagagttg tctcacttgc ggggtgaagg ttgaagactg ctccctggac 240  
 aatgccttct ccatttcctc atacttttca cctgcctgtg attgggcca gacctgttcc 300  
 cattgcccaa gaaagctctc aggaagatgc tcaagtgcct gcagtaagaa gcaatcagc 359

<210> 165  
 <211> 346  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA406371

<400> 165  
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 tactgtggag acgagacagc cccattgcaa tttatcaatg aaaatctaata accgccata 120  
 agcagagaag tggaaatcaa tacttcatta ccaaattgtt agtgaggatg aagagaaatg 180  
 gctgggggtga tttttttttt tttttttttt ggcagtcttc tcagagccag ggtgtcagga 240  
 ggagttcaat gagttcaatg tcagaagcag gatgggtgcaa cgaagaaggg ttcagtgtga 300  
 ggggatccag gctggaaagt ggaaactaag gcattcgtcc tgcaga 346

<210> 166  
 <211> 143  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA410298

<400> 166  
 gcaggctaga aaataatattt aatgcaaagt agaaagtatc aatccacctc atcacttttcc 60  
 ttgctctctc tctgtcacct cctcttttct gtggctctga ggaggtggga gaagcaggca 120  
 gtattttccac agcagctgtc cat 143

<210> 167  
 <211> 298  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA410311

<400> 167  
 ttttttttaa agtaacattt aatgaatata catttataaa agccatcatc ccttaacatg 60

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gggaaagtgt acaaaaataa tgtgaaagtg taaaaatfff tctagaatac aggaaacata 120
tcagcagtaa agaagtttag tttaactfff tttttaaatg taaaatagtt tggatctgtt 180
aaaaggaata cagttcgccc aaagcactta ttttcatctg ttgtaaactc attctttcta 240
ccttaagtaa actggaggag tcagctgtgt taatatgggtc aaattaatft catagttt 298

```

<210> 168

<211> 445

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA410355

<400> 168

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gcagcggatt gggggtggcc aggggatgct gctgatgtgc agagacatcc ctttttccgg 60
cacatgaatt gggacgacct tctggcctgg cgtgtggacc ccctttcagg ccctgtctgc 120
agtccgagga ggacgtgagc cagtttgata cccgcttcac acggcagacg ccggtggaca 180
gtcctgatga cacagccctc agcgagagtg ccaaccaggc cttcctgggc ttcacatacg 240
tggcgccgtc tgtcctggac agcatcacgg agggcttctc cttccagccc aagctgcgct 300
caccaggcg cctcaacagt agccccggg tccccgtcag cccctcaag ttctccctt 360
ttgaggggtt tgggccagc cccagcctgc cggagccac ggagctacct ctacctcac 420
tcctgccacc gccgccgcc tcgac 445

```

<210> 169

<211> 415

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA410383

<400> 169

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aagtaaaatg tttgctcaac tttattgaat gtcattagat ttataggaat cattaaagaa 60
ttagatacca gagtcccccc ggcccagacc cccacaaaaa aagtcagtga aaaagatgtg 120
agtgaagaa gtttgtcaag gcaaagtgtg gaaaggatac atgtgtacat caccctttaa 180
atgctttccc tgagtattct atgaagctcg gggatcttcg aatgctatta atcttagaca 240
gtaaatftta taaagaaatt ctttaaaagt aggacttaat tctcctccgt agtgagtftt 300
taagcagagg atatctacta catggattcc tttgctctt gacaggctca agttccatct 360
gcctcccagg cagctttttg agtctttcat agaagcctgc ttttaatata tgcca 415

```

<210> 170

<211> 406

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA411860

<400> 170

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tttttttttt ttttttagatt ctcacaacct cttgttccgc agttcattaa tccgactctg 60
atgctaaggt gacagtgtat gtaagtagat ttttgttttc agtgaaggag acctgggaaa 120
agatggattt ctctctgtat cttcaagagt tatcagatgg tacatgctcc tcaaagccct 180
cactctctcg aactagagca cgttccagga tcacgcggcc ttccttatat cgctggctgt 240
cttcagtggc aaactcatag atccatccca gtttgctatt gcagtttttg cagctcacat 300
ctcgaacct gtggcgcca gtgagcatga cccgatcttg aacttcactg tactgcagg 360
taactacctt gttaaaaaga aatgctctgc cagtggggcc tgtgaa 406

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<210> 171  
 <211> 73  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA411952

<400> 171  
 ttctatttaa ttgattttat tataactgga ttaggtctga gccctgggaa acagacatca 60  
 ccttggtata cag 73

<210> 172  
 <211> 289  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA411981

<400> 172  
 acactgttta ttgagtggca ggcacaggag aggtagctgg ctccggtgtg gaagcagagg 60  
 tggcagggtca tgccaggggtg ctgtgggcat ctggcagcca gggccatgcc cccatcctag 120  
 ggggacggca caagctcact atgacaggag cagcaaggag ccggccagag gagggggtag 180  
 ccacgacccc caggatcctg ggcaagaagc ggcagacaaa cttggcacag gggcctaggg 240  
 tgaggggggac tggggcctgg gtattctgtg ggggaggggag ggggatcac 289

<210> 173  
 <211> 406  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA412049

<400> 173  
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 ctgccatcca aggaagcgca gaaaaggaca cccctcaggc cctggatgga ggaggatgac 120  
 cccaataact ggatggagaa ggatgcccc agtcctagat ggagaaggat gccccctca 180  
 gtccctggatg gagacgtcat gagtaactgt cggtaggaaa catcatgttc ttcattctgc 240  
 ccttgctcct tgggctccaa caggaaaaac cagaaattct gtggatataa aacatggaaa 300  
 cattcattct ttaaagaaaa aggctgcaga gacaagaaca gcgaaaggat ggtattgaat 360  
 acatgcaaat ggataaaata tgaatgatta tgttctcatg ttcaac 406

<210> 174  
 <211> 521  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA412063

<400> 174  
 ttttgcaaag ttaacatttt tattgaactg aaattggtgt agaacagggg caaccacagc 60  
 tgctgagctc tgtaacaact gaaaagcccc tgtgacattt tacctttgag agtcctaaca 120

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cggtttgagt ggaacagctg agaaacagca tatatatatt ttaacacctc aaaatagttt 180
gaaatgagcc tcacagcctt gttcaatctt cagattacaa ataacattga tagcatctcc 240
tgtggccttc agttagtagt gccagttaat attgtttctg aaaactttcc tctcaaagtg 300
ctggctataa ttttttttcc atccagtaca cataagaaaa ggatttagta acacttgggc 360
aagtaataaa ctgtagaact ttaaaagtag taaaggcata taccaagcat acgtgactcc 420
acacattgtc agaaaggcag tggactggct aacgagtttc tgccaagttt cagaagcaaa 480
gaatgcacta atgaaaaggg taaggcatcc aagcagagtg t 521

```

<210> 175

<211> 387

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA412505

<400> 175

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tttttttttt ttgaataata taacagtttt attataaatc aaaacaccaa acttttgcaa 60
actttacata aacgtgtagc catatgactg tataacaaga gcccaagagc aaccattgtc 120
taacaggtag aaatgcagac agtttcatgt taagccttta gaatttcctt tcacggcagg 180
tttccaaaat aaactaactt ttctaacatt tatttccaca aaaatatatt tcaagttaga 240
ataaacaact cattggcttc agacatttaa ttgtatgtat ttaaccatac tcagataatt 300
gtcatattta gccaaatgga ggctttttct gtgacctatt tccaaattct cagattctgg 360
ttcatctact ccttcaagca gtttgga 387

```

<210> 176

<211> 399

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA412722

<400> 176

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tttttttttt tttttttttt tttttttttt ttttttccgg cacgaggctt tttattctaa 60
cagcactggg gggcccagcc tacctgccag acagttccca ggagtgaggc tggctcttcc 120
tggcagataa gacacagttt tgttgggtga atgagcggct cctcccttgg tccaggaaga 180
gctccccctg cattgggtga tgaaattctg tctttctgaa ggccgggcag tgcacagcgg 240
cccttcctct ctgggaatgc ccaggctcac acagtccact tcagacacct ggtctcctgg 300
tgggtcccca gacagcgcac agtgcagtac cgggcaccgc agctgacaca ggtgtagggg 360
gatgggaagc cacagacagc acagaagggg cgctgggggc 399

```

<210> 177

<211> 427

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA416685

<400> 177

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tttttttttt ttttttttgc ataagataat ttattacaga ctagcctata atctcctgta 60
acaatggcac atataataat taacaacagc aaagatgctt ggtttcttgt ttcatgtaat 120
ggccagtaca tctgtggaca atgtcgagtc ctcaggaagt ccaggaggct gctacagagg 180
aaatccaaga accatgtcac atctctcaac aagtcttggg aagtccatct gactctctga 240
aacagtttgt ctctgacctc ccaggaagtg tggagggccc cttccatcca gcctgtacag 300

```

```

agggatcaga gtccaggctc cttctatagg gttgaatata agaggggaat agcaaatac 360
cccgatgaga gagagagaga ccaaaggcta gattctttct gcaagggtga ggacggctag 420
aaggcag                                     427

```

<210> 178

<211> 527

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA416762

<220>

<221> unsure

<222> (1)..(527)

<223> n = a or c or g or t

<400> 178

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tttttcctgt ttctgttttt agtttttatt aaataaaagc agaggaagag gaaggcccct 60
gggtctcccg gctagggggg agagccatgg gtccctccct ccctctgttc aagggtgact 120
gcgtgctggg cttgaggtgt aagctgggga gggagggcag ccgggaaggg tcagtggctg 180
ggacctgcaa ccctttcacc ccttctggaa gactcgctgg gcaggaggag agcctcctgg 240
acctggactg gggtttatcc caaggatga gagccgatag gtctacaggc tcggcccaag 300
ggcccttcca ccctaggaag aggaaggggt gccggcgtct atctgctgga ggggtggcag 360
gcaaggctgt ggggctgggt ggccagccct tctctgctgg acgtcccaga tctccgacag 420
cagaggcggc agcttcttgt cctggagccg caaggannga cctgctccga gtgcacagag 480
ctcagcgtgc gcaggctcac cagcttcatt agcatgcgag ggaagag                                     527

```

<210> 179

<211> 368

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA419011

<400> 179

```

tttttttttt tttttttcaa ggggatttta atgaaatttt attaaggaga tgagaagcag 60
ggagtctgtg ttgaaaattc aataaagggc ttgtttttcca tctcagcctg gataatctat 120
gttatctctg agtaaagggg gtaacaattc taacaacctg gcttccttag aagtttccat 180
tctcatatag tcaccgaagg cagcagcact caggcgtttg ctgccgtgcc tgccctttgg 240
tttctgggac ggctcggggt ccgtagcgcc ggcacagctg agattgccaa gccgggaaga 300
gaccttgctc caggtgtagc tgcgttttcc ccagatcacc tgtccttttc ccctccgaca 360
aggaagct                                     368

```

<210> 180

<211> 260

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA419546

<400> 180

```

cacattaaat tattttattga acaaattgaa gataatgaca tatgttttta ttacaaagtc 60
ttccatcatc ttatatcatt gacacatatt atgagacctg catttgaaga gtgaatagaa 120

```

```

ataagaaaat gttttcccaa cccacaaaaa acagaaaaaa atatattaat tttataatta 180
tcttataaaag ccaaaagtgt tatgaattat acttttttta ttagttaaaa atgacagcat 240
aactaagggtt aattttttatt                                     260

```

<210> 181  
 <211> 412  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA421562

```

<400> 181
tttttttttt tggagaaaac agaacacccc caaaacattt attttttttt tagaaaatca 60
tggctcacta tggtagtata caatattgtt ttcacacatg tacacttgaa accaaatttc 120
taaaacttgt ttttcttaaa aaatagttgt tgtaacatta aaccataacc taatcagtgt 180
gttcactatg cttccacact agccagtctt ctcacacttc ttctggtttc aagtctcaag 240
gcctgacaga cagaagggtt tggagatttt ttttctttac aattcagtct tcagcaactt 300
gagagctttc ttcattgtgt caagcaacag agctgtatct gcaggttcgt aagcatagag 360
acgatttgaa tatcttcocag tgatatcggc tctaactgtc agagatgggt ca 412

```

<210> 182  
 <211> 329  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA424530

```

<400> 182
tttttttttt ttttttgctg atcaaaattca tttaatcttt gttaaaagca tcacaaatga 60
ttcatcgatt tttaaaaagg aaaaaataaga aggaatgcat tgtctctttg ttatgtgcat 120
ggcagctgat ggctcgttc ccaggcgccc aggtctacct gaacatcaga tatgcagacc 180
ctcgaattta caaccaggga cagccacggg cccacgcctg gatctccatg ggtgcacaga 240
cggaacgta tcaggctgtc tcagatgcca cctccttccc aggtgcttgg gtccacatgc 300
ccaacatgtt cttaatagaa atattaaca                                     329

```

<210> 183  
 <211> 305  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA426372

```

<400> 183
gcggccgccc gggatccgcg ccgctcacc gccgcctcc agctccttgc ggttgagctt 60
gaaggaaccg ttggcgccgg tgcccttcac ctgcagaagc gtgtcgttct gcaccagcgc 120
cttgatcgag tacttgaggt aggtgcgccc attctgctgg tcgaaccacg gaaccttctt 180
ggcctcgggt tagatcttgg ccagcgacga gccgttgcgc tcgcccagcc tacggatggg 240
ctccaccacc agctggctgt acttgcccgg ctggttcttc ttcttgctat tcttcctctt 300
cttag                                             305

```

<210> 184  
 <211> 486  
 <212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA426374

<400> 184

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tttttttttt tggttttata cagaaccttt aattgcaaag aacttgaaag cagccacgct 60
ggtgggtggc agtggagtgg agaaccacc acacctccc ctcatgtattc ttcaccttct 120
tcagcctcgg cttccacgga atccacgccc acctcttcat aatccttctc cagagctgcc 180
aggtcctcgc gggcctcaga gaactcccc tcctccatgc cttctcccac gtaccagtgc 240
acaaaggccc gcttggcata catgagatcg aacttatggg ccaggcgagc ccaggcctcc 300
gcgatggccg tgggtgttgct cagcatgcac acagcccgcg gcaccttggc caggtctccc 360
ccagggaacca ccgtgggggg cctggtagtt aatgcccacc ttaaattccag ttgggcacaa 420
tctacaaact ggatgggtgcg ctgggtcttga tgggtggcgat ggcgcgttga catctttcgg 480
gaccac 486
```

<210> 185

<211> 133

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA427622

<400> 185

```
tttttttttt ttttttttaa taatcacgta agatgcgata atacttctgg cattttcaaa 60
aagtgaanaac tgtataaaaa taaatattcc ccatacaaac acacacacag gccaatccaa 120
ggtttagaggc atc 133
```

<210> 186

<211> 448

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA427890

<400> 186

```
ttttttaagg atttgaatct atgtatatat attttacatt tttcaacatt tgtgttttat 60
tccattaaca taaccattta cagttattcc agaaatttca gtcatacaca gtgctcttga 120
atccaaagag tgggtctagtg tgttggcatt ttcataagc acagtcctag aaaatgtcaa 180
gttgaacaat aagatatiga ggcacattgg tcaactgtga ttctgaattc tttagtatgg 240
tcagaggaag tagttaatat atttcatgtt gattctttgg ctactcttga tttttgcttt 300
gggtaacatc ctcatcctgg gaacattcat taccacttaa tagcaagata acattaaaaa 360
aaaatccttc attgccacat ttaatagcat gtttaaaaag gcagagggtg caatgagctg 420
agaacgcact actgcactcc agcctggg 448
```

<210> 187

<211> 159

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA428325

<400> 187

```

tttttttttt tgcacggctt atttccttta atcttttgcaa caaccctaaag tataatagta 60
agcacagggt ttttgcgtag taccggtag gccttattaa gaattagctc ttattttcat 120
caaaggtaga gaaaatgagt aactattgag gcccccgct 159

```

```

<210> 188
<211> 366
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. AA429539

```

```

<400> 188
atcttgtttt tctgatcgga gcatcactac tgacctgttg taggcagcta tcttacagac 60
gcatgaatgt aagagtagga aggggtgggt gtcagggatc acttgggatc tttgacactt 120
gaaaaattac acctggcagc tgcgtttaag ccttccccca tctgtgtactg cagagttgag 180
ctggcagggg aggggtgtag aggggtgggg ctggaacccc tccccgggag gagtgccatc 240
tgggtcttcc atctagaact gtttacatga agataagata ctcaactgttc atgaatacac 300
ttgatgttca agtattaaga cctatgcaat attttttact tttctaataa acatgtttgt 360
taaaac 366

```

```

<210> 189
<211> 257
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. AA429636

```

```

<400> 189
tttatttttg aaaatgttaa aatttattaa taatagttaa catcacatag ttaattaaac 60
tagttatgta ttgtacataa tgacaacatc ttcactagac tgagtgtctc aggatttgag 120
atgattcgct attcatcaca cccgaagat tgagatccac tgtatttaca caaagctaaag 180
ccatgtcagc aagggtactgt caacctgatt ctgagaacat aaacattcaa aatttatttt 240
ccagtgttcc ttttttgg 257

```

```

<210> 190
<211> 428
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. AA430074

```

```

<400> 190
tttttaccat tagattgtaa atttaattta aaataaaatg tccctaaaat catctcagta 60
cttggcacac tgacttaaga tgtgggggtg gggagcatcc cttaacacat tctttgtttt 120
cctggtaaat actggtggaa caagacagct gagaatgtat gacatctgac catgaacata 180
tgacagctgt ttgtgccagt catgtccaaa cccatggctc tcaactccag atccaaaaac 240
tctccccatg ttttagacct cccacaccag catttaggat ttcttcctct ataactcttg 300
tgggtgctgg tcttggcagg gcatctactg gggataggtg gtttggggtc tcagtgggtg 360
gcaccggctt gttcttgctt cctctgcagc tctcttgcc gcctcgctg ctgttctact 420
atgcaatc 428

```

```

<210> 191
<211> 335

```

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA430388

&lt;400&gt; 191

```

gatgttttat agtcctctgt ttcagtgcct tccccatgcc catggagctg tcccaaaacc 60
catccctcag tatttggtga tgccaaagac acgaacccca tggaactggg gcaacttcgg 120
cagcagtaca cttagcaatg aggctgtgtt gatgaggaag tgcgcacatc atacttggtg 180
tagaagctgg ccaggagata gagcacaata ggagagatgc tgaggaactt gcgggaagag 240
gtaaaactgga gcccatagtc catttgctcc cagtgtgtca gtagccgagc ctttccttgg 300
tcaggagtct caaagggtgt ccctttcacc gtatg 335

```

&lt;210&gt; 192

&lt;211&gt; 259

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA431470

&lt;400&gt; 192

```

tttttcacac aaatcatcgg catttatctt ctgggtccta ggtgtcactt atcctgggtg 60
acagggcaga ggtggtcaga tcgttttgag ccaaaatccc ttccctaaaa atggatctgt 120
ggagctccat gagggaaact cagagatgca caatgacagt ttagctaaaa tggcttaaaa 180
aatgtgaatt gattgtcagc tctctccata tctgctgaaa aaaggtttaa aattttttaa 240
aagtttaaaa gtgttttct 259

```

&lt;210&gt; 193

&lt;211&gt; 489

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA432162

&lt;400&gt; 193

```

tttttacagt ttcttttttt gcgttttatt tttttcaa at tgcattttac agtagaaatg 60
cagaccactt tggatagcta tggctcgata cttctgggtg ccctcctcct aagacatcct 120
cttcttacat tccactgaac agaaaaccat cccttctact ggcatgaact tctgccaat 180
gaggcatttg ctgcagcaag agcacagaaa gcaactctgt gatgcatgcc agctgaaatt 240
gttataggtc acccgctgca cttctgggtc gatggcattg tggcatcctt gacacaccac 300
agcgtgattc ttcacatagc agggcttgca cacgggcttg tcattgacca tcacgtatat 360
ctccccagct agaatgctat cacagtcaaa gcagcagaag tgtttcaggt gccaattctg 420
gttttctgcc tgggtatact cattgctgaa tatcagctcg tcacagccag cacatcgggg 480
tttctcgt 489

```

&lt;210&gt; 194

&lt;211&gt; 367

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA432292

```

<400> 194
tttgaggaat gagcaattta tttcaataaa gagaaagcat taatttttgct acagtgggaa 60
aaaatgaact caagagttgc tacattttaac tgtatcccca tttatctctg cacgatgtct 120
tatctcagtg tctcaattca cactaaaata ttgaatgaga aatacaccac gttggctgat 180
tgcttgacat gtctgattta gggagacttc tacaaccact cctctctttt ttctccagt 240
aaatactttt gactttgaca cctaccatat tggaaatgac aggtgcccga gggcaagtgc 300
atcaaagcag ttaggattcg aatgcttgct aaggattatt tttttaatgg agcagttcta 360
ttgaatc 367

```

<210> 195

<211> 323

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA434108

```

<400> 195
ttatTTTTTT tttttTTTTT tttgccatat ttttaaaata ctttattttt tacataatac 60
tgtcattaca aaaaaataca aaaaaactac tataaaaaca ttcggggggtt gtcaaagtga 120
gaaaacctaa agacccacc ccaggatctg gctgaagcag tcttcccca gcttcttcac 180
tatgaccttt atacaactat ggggggtggg tgggatcaca caggcataaa agggctggaa 240
attcccaca cagcctccaa gggtaagaaa tgagtagctt cacatatcac aaaagtggga 300
tttggaagtt tgggggtggc tag 323

```

<210> 196

<211> 506

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA435720

```

<400> 196
ttttggTTTT atacagaacc ttttaattgca aacaacttgg aagcagccat cccgggggtg 60
gcaggggaga acccaccaca cctccccctc agtattcttc gccttcttca gcctcagctt 120
ccacggaatc cacgcccacc tcttcataat ccttctctag agctgccagg tcctcgcggg 180
cctcagagaa ctctccctct tccatgcctt cgcccacgta ccagtgcaca aaggcccgt 240
tggcatacat gagatcgaac ttatgggtcca ggcgggcccga ggctccgca atggccgtgg 300
tgttgctcag catgcacacg gcccgctgca ccttggccag gtctcccccg gggaccactg 360
tggggggctg gtagttaatg cccaccttaa atccagtcgg gcaccaatcc aaaaactgga 420
tagtgcgctt ggtcttgatg gtggcgatgg cgcgttgacg tctttgggga ccacgtcgcc 480
ctgtacaaca tgcagcaggc catgta 506

```

<210> 197

<211> 265

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA435769

```

<400> 197
ttttttgagc tttggacaaa tttattgaaa catacaggcg gctgttagca gagaaatcat 60
tccatgattg atgtgttaca tttggccact accttgaatg tataatttaa aaattatatt 120
tttcacaact aagccttttg ccaaaaaagt catttagcac atctttaaag atcaataaga 180

```

aatggattttt ggacattaaa aagatcaagt cactgaatta aacagtagca acccccatta 240  
atctagaatc ccatagtgtc gaagg 265

<210> 198  
<211> 437  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA436616

<400> 198  
ttttttttttt ttttttttttt tttttttgtaa ttttaaacttt atttcatatc tattgtttaa 60  
ttacacaaaaa tcagtgaatg gtttgtaaag ctacaccaat ggacagatgt ttacagttga 120  
aatcatggga tttacataat ggcaaaaatg tatatgtata tttataacat cctctatata 180  
caataatcag tatagacaga gaaaatgcac ttaatctttg caaatcatgc acaccacagc 240  
aataacacaa aatgtttttt ctgtaacaag cttttccact ggctcaggct tcatcctgtc 300  
ttccaacaat acctatcagt tttaaaagca aacattttca attaaaacta aagaaaattg 360  
aaataccata gtgatctact aactatttta aaaacacaat tgtacacaaa atagtttttac 420  
tctaaaacac tgtgact 437

<210> 199  
<211> 443  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA436618

<400> 199  
ttttttttttt ttagcagtta ggtgacaagc aatttttattt tgcaaaacaa tcactataca 60  
gcaacaaata catttgcaaa tttgattgaa aaacatgaac taactacaac cagccattga 120  
agaaatgcct ttctatggta acaggctcta gaattatcag aagaaagaaa cccccacag 180  
atttgtaaca gtgtgttgga acctcggaat cccagcatac agagtatact tttatgttga 240  
tttttatttc tttttgctaa agttgaagta gattttttatg attgacattt tatttttctga 300  
gtttgaaaat aagctttttc ctgcagagag tcttggcctt cacctacaca cccaagctaa 360  
aaatcctagg tgtaaaaaaa ctcaaaacat caatgcttat tttagcacgt caatctttga 420  
aggaatgcctt aaaatttcct tac 443

<210> 200  
<211> 219  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA436655

<400> 200  
tttttaattt gctaaacttt attttataca tacacgttta catttactag tcatgggtgtc 60  
aacttggttaa cacaacgaag ccctaattga cccgttttga aattagaagc tggacagtta 120  
caggcttttg tctcttcaag aatccaattc acccctgggt ttcgcttggc acacacccca 180  
ggagaacgtc gatgcacaca gctgtgtagc tgcaaacgg 219

<210> 201  
<211> 419  
<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA436861

<400> 201

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ttttattttaa attattttat tgaaggagat aagttactca gatattaact ggttgtaggc 60
aaagggaata aacatggtga agtcagggtt gctggtaaag gggagacagt actaaacgcc 120
ctgccaaca aatactcaga atccagggtt ttcataatttc tccatgggtc aatctctcac 180
aggtcacttt ccattcaaag gattatggag accaaataag acaggattct ttcaggatc 240
aaccagagt ctttaggtct tctctcagcc aaggcatcga gtgaaaatac aatttatttt 300
tcggattcct ctggaggatt aaaaagtttc tttcgcatg caatgccatg ctccctgctc 360
ttggtcctgt tttctacgta ctgtcgtcct agctactcag gaggctgagg tgggaagat 419

```

<210> 202

<211> 292

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA443114

<400> 202

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atgtacaaaa acatttttaat tgaaatacct gtataaaaaa atatgatctc cagacatctc 60
acttttgaac tgaaagaacc cccatctgcg atgcctgcac acaccgcatt cacacaaaca 120
caggtagtga ataaattaaa cgctcaggct ctggccccac ccagccttc agagcccaca 180
agcagactgt acaaagtcaa taatttaaaa cccaaaccct gggcacagtg cctggaagtg 240
tcagggtcac ccactcccct taagttagcc actatacatg ttcattcttc ga 292

```

<210> 203

<211> 420

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA443923

<400> 203

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tttttcaatg cattgtttat tgagtactaa ctagcttttg gccaggctc tgggttagca 60
gcatgcgtga aacaatcaga aacaatcatg agcgctgcc cacatggggc atacagtctg 120
gcagggaag actgtagaca cagaaataaa tatccgatta taagctgtga ttagaggcat 180
gatggaaaag agcaaggctt cctgagagaa acagggcgag cacaggaaaa cctctctgag 240
acagtgcacat gaacttgaaa cttgaagggt aaacaggagt gggcaccccc aaaggggaaa 300
gaaggaatct tccaggcaga gagaaagaga aaagaccag gcacggtata gaccagagga 360
aatttgaggc cccaccccc ccgcccccc ccccccccc cccctcccc caggaaggcg 420

```

<210> 204

<211> 213

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA446241

<400> 204

```

aggctctctgt gaggggaagc agcaggtgag ggagaagggg gacacaaggg ggagacgtgg 60
ggaggcaggg ccaggggaag gtgacatata gacatggagt gggtaagga agacacatgc 120
attcacggac ctcagggccc cttggcaggg acaaacagat ggactgacta ggatgagggg 180
aacaggacgg acgtggatgc ctcactcaag gcc 213

```

<210> 205

<211> 455

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA446651

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<400> 205
tttttcctct taaattatct ttcattctga ttatattaca aagaaatgag ctgtggagggt 60
ttggcactgt tttccatctt aacagttgtt ctgtattgta agattttata tgtgattcat 120
aatgtactac tataacaaga cacagttttt atatattact ggaataatgc aaagaaaatg 180
aattttcctt tgggtccagt aattgtcaaa ggaatgattg cagattcaga aaatgtgctt 240
tgtaataacc ctgttaacat aaagtataca ctgaggaaaa aaataagtat ggcacatata 300
tggaaggatt agttgtatta gcaaggcatt tcaggggatgg ttttggttct ttagactaag 360
taagatacat ccaatttaga ccccttcaa atccttagac aaatgggaat cacttggtta 420
cataaagatt attttggtgg gcaggggctg atttc 455

```

<210> 206

<211> 451

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA446661

```

<400> 206
tttccacaaa aatgtaatat acatttaata gcacattata aagttcctga ccaaagacgt 60
tgatttccta attataatag cacagaaatc ctttagaatt tagtaaacgt aattaagact 120
attcagaagt aatgaaaaac caatatgata aaaacaaaaa tcctccagta aagaaggaaac 180
ctgtccattt gagagaaata caattgagaa cttgcaaatg agacaaggga agatggcaat 240
ttggaactgc aatagaaata actatagcag aaacaacat ttaagaagtt ttagcagcaa 300
taagtattta ttattctgaa tgaaatgtac agttgacttt tatataaaaa tcatcaaaag 360
tgctatattg gattatttta ctattaattt aacccccaac agcatctatt agctataact 420
ttaatggggt tttctttact tctgatacat c 451

```

<210> 207

<211> 209

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA447522

```

<400> 207
ttaatcaaca gaaaacaagt ttaatgcaac aggtgacaac ggtctggagc gagtccatgc 60
tccggaaggc tcagtctgtg gcagtcccggt ggctcaagac aggctgaggc cggctgcaat 120
ggaggccagc agcaggagga tggccagcca cagcccacca cagctctcac ccatgctccc 180
agcatattct ttgaacactg atgagttga 209

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<210> 208

<211> 449  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA447537

<400> 208  
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gaggctcact gggcagggtg ccaacatccc tttcaagggg atacaccata aagatgacat 180  
tgtccaaggt ttggagggca gggatgatctg gtctgaccac ctcaaagccc atgtagctga 240  
aggcccgcag cagggcacct ctgtcgttcc gatcattctg gaagttcaca aacacagagt 300  
ccacatttgt cttctcttcc acgtactcca gggttgcagt caaactttcc cggttgccct 360  
gatccaaggc ctgatatggg atatccagga agagtcgacg gtcacagaga aggccgtgca 420  
atgggcagag gtctgggagg taaggcgga 449

<210> 209  
<211> 342  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA447707

<400> 209  
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cgccccctgc agtcctccag ttgcccagca gcagtgggac gctcagtggc acacagtggg 180  
tctctgtatg gcctcccacc tgcaagggtc tccccgggca ggcccagctg ccagaagccc 240  
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tgtagctaga aaacccaacc gaggatctgt ctagaatact tc 342

<210> 210  
<211> 409  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA447977

<400> 210  
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ctatactgat tatatttatc atgtgacttc taattagaaa atgtatccaa aagcaaaaaca 120  
gcagatatatc aaaattaaag agacagaaga tagacattaa cagataaggc aacttataca 180  
ttgagaatcc aaatccaata catttaaaaca tttgggaaat gaggggggaca aatggaagcc 240  
agatcaaatt tgtgtaaaac tattcagtat gtttcccttg cttcatgtct gagaaggctc 300  
tcccttcaat ggggatgaca aactccaaat gccacacaaa tggttaacaga atactagatt 360  
cacactggaa cggggggtaaa gaagaaatta ttttctataa aagggtcc 409

<210> 211  
<211> 376  
<212> DNA  
<213> Homo sapiens

<220>

<223> Genbank Accession No. AA448625

<400> 211

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tgacatctga atatgacagt atattgaaaa aagaatgcat gttatttatt ccatactggg 120
gaagtgccac tataacattg ttttaaaaaa tcttcaaaaa tttcctatta gaacctatca 180
ttgaattaga aaagcaagct ttgccaaatg cctgattatg cctttactgg tcctgctagc 240
tggcatgttt caccaacttt tccctagtgt ttcctttggc actgttgagc ccacactaca 300
aaacatgaac aagtcccaca aaaccacact atgccctctg cttccccatc atgtggggac 360
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<210> 212

<211> 409

<212> DNA

<213> Homo sapiens

<220>

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<400> 212

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attacaggta agctacaatg ggtttaattt gcaaaagtta agtaagaaat gttttaaaaca 180
aggcttaag tactcaagtc aattataaaa tttatatctt ttgcctttta cttgaagaaa 240
tcatgctata gaaatgggta atgtgcttct aataaatgga agtattgtag ctggaatgtg 300
atacatgtaa cagtttaagt tcccattgaa ggtataaaat gatgaattgt tgtaagactt 360
agacactgag tctcagtctg gagctgatga agatgttgag ataacagcc 409
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<210> 213

<211> 112

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA449791

<400> 213

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ttacctaaat caaactcatg tggatccctc agcaaccaac ccctgtgcag ga 112
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<210> 214

<211> 386

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA450114

<400> 214

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aacatgtgat taacaggaag gagatgattg gtgagttttc ttcgtaacca ggttcaactgt 180
ggataggaag ggctgcctt ccttcccacc atggagatcc taaaatcaca agctccagcc 240
tccatcaatg atgacagggt taccagttac ataagcagat tcatcagaag ccaaatacac 300
gcagagcatg gctatttctt ctgcagttgc gaatcttccc gtcttttgtc tcttcaggaa 360
atcattccgt gcctcttcag gatttc 386
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<210> 215  
 <211> 431  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA450127

<400> 215  
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 aatattttatt gtatttttttg tttgtggcag caactcaaca gattctgctg ctgggaaggg 180  
 cctcagcggtt cctgaagaga gatgtagggg acccactggg tgttgccccg gctttcttcg 240  
 cagtagctgg ccacctccac caagccgtgg ctcttcacagg cgtccgtgtg aggggttcgtg 300  
 accaggagac aatgcaggtc tcgggcctcg gtgggtgccct ggggtctcggc cggctctccc 360  
 aggagctgcg ccaggcgctg catgcccagc acccgcacga tgttgatgtc gttgtcacag 420  
 cagaaggact g 431

<210> 216  
 <211> 282  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA450324

<400> 216  
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 caaaatgccc tcatttctat tttttccctt tcagttaata atttagttta aaagtgcaca 180  
 cttatgggttc agtaaattggg ctttgtctag tagtcacaga tgctgagtat gaatttcaat 240  
 ggatccgtta gctttactac taagatcttg ctgagatcag ag 282

<210> 217  
 <211> 147  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA451836

<400> 217  
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 tcacagctt tattctctat gacatggggc atgatgtcca gcagatcatt ggcaaatcca 120  
 aaaacctcat gacaaatgaa aattaaa 147

<210> 218  
 <211> 386  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA453433

<400> 218

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ttaaaggagc aaaaggcttt attgataaat atgcagatat gtctgtccac agggacctgc 60
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cctgtgcaga ccctgccacg acagcccagc cgtccaccac ccgcctcatc tctgccaatt 180
gtgctggggg cagggagagg cagaggcccg cctcaggctt cccaagccct ggggctcacg 240
ggtggttccc tcccttccaa gggagtggca ctgtgcccag gggagagcca ggggatgggg 300
gcagaggagg gagacagcag ctgcttcaga ccctgagcag aaaaccagag tgagcacagc 360
tggcagcacc agatgacaga tctggg                                     386

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<210> 219

<211> 346

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA453435

<400> 219

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tcatttactt cagagcaaat gtaagcttat aatattaaaa attaaagtat tacaatattt 120
acaagatggg tggcagggga cacttactag tataaaaaata atacaaatat tgtattttcc 180
tcttatctgc cagtaaaaaat ggcaaacagt tttgtctttc tgaagtttct agtcaataac 240
caaagatgag gagcccctaa taaagtgcct tgccctgtat gctccactgt ctatagcttt 300
agaccctcaa cattcttctt caagttcagc agctcttttt cttgcc                                     346

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<210> 220

<211> 379

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA454908

<400> 220

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cctacagaca accaagcact aatcccctta gtaccaagaa aggggagcca ggatttagtc 120
ctggcccagc ccagagctgg gacctggagc acgatctgtt gacttccttg ggtaggacac 180
tgccacctct gggctcaggt cctcatgcct ccaaattggca tctagagttt gagcagcctt 240
cttggctgag gcaggcctag cctgtggagc gggctagggc caggagcatt tgggtgcccct 300
ccatgttgca atgcaaacac cttcaccact ggggcagtgg ggagagatgg ctatattaat 360
aaaataacgt gtgtctttc                                     379

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<210> 221

<211> 426

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA455001

<400> 221

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actgatctct gggatgtcag ctgctgagag gagcaagcgg tagtaccacc ccttagttga 120
gggagtcagc acagtccttt ctgcagcttc taaccaggga ccatgaactc aggtgcctag 180
agaagccagg cagctaaagg acaaggaatg ctgggggctg tgggaacagg aatgcagata 240
ccctttgaag gagcattcct gctaaaagaa gctgaaaatg tagacctatg tgaagtgtct 300
tgattttctaa atattgtgaa ggttaagaaa gacataaatt taggtctatg ggctagattt 360

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agcccacagt tgccagtttc tagcgctacc aaatgaatga ataaacatga gcttgcgctc 420  
ctagcc 426

<210> 222  
<211> 256  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA455070

<400> 222  
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gaacaggtga tacattttca tttgttagaa actgatcttt ctgtaataaa atagattttc 120  
aattcagtgt atgtcattat tactgctaag gaaatcttag cccttgctctg ccttaaagga 180  
atctttattt aatttactgt aattattgct gtgtagtcac tacttttggt aattttctcaa 240  
atcacttaga tgatgg 256

<210> 223  
<211> 465  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA455381

<400> 223  
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cactccacag aggaaattaa tccttcggtg acgccaaacca tgccacttc cagctgctct 180  
gccactctcc agatctgggc tgggtcttga gagtaaaaat aacctgctaa cccaacatca 240  
gctgcggttac ggattgctat agcctctcct ctgtatcgaa cttgataact ggtgccagag 300  
cgcgaaagtc tcttcatgag tgcacagcat gtccctgggtg acattgcaca gcagggtagg 360  
ctcaaagaaa ttttttccaa gttggtgtcg ttttccacct gtcacaacgg tggcaccttt 420  
agaaacggca tcattcacct gtttctccac cttttctacc gggtt 465

<210> 224  
<211> 433  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA456147

<400> 224  
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cagaaatgaa aaatcttaac ccaaataata ttcatttgac agtcacataa aatttttagat 120  
ttgattgggtg cacacattta tcctgcatat atattatgta tatgcacaga gagacctcac 180  
tattatgcca ttgttagggg tcttttttttg gaagtacctc attacaaggc aatgtcaaag 240  
gttccagtaa ctactcaact ttgaatgaag ttcaaaatgt ccccatgcta agctgagctc 300  
gtgccatagc aaacctatgat atagcaagtc tccagaatgt gtacaaatca atactctgtt 360  
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caaatttata agt 433

<210> 225  
<211> 355

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA457235

&lt;400&gt; 225

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aagtgccttaa gatggtggtt aatacagcag ggagccaaga tacagtagta ggacacagta 60
aagaatgtgg agtgtgtaga tacaataaag aattcatttt atgatctgcc acctgttact 120
tgacagagga gtaagttagg gaaataaatg actcagttct tcatacatgc aaaggtaagt 180
tagttattac aaaagttttt gctgttggtt gtgctgaaaag aaaagcatat gcattttaac 240
atTTTTTaaa aaataaatca ctcaataggg ttaagaaaaa tacttttagtt catagttcat 300
tgatctgacg ttttgattta agatcagggg atgaatccag gatgaaaacc aaaga      355

```

&lt;210&gt; 226

&lt;211&gt; 354

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA457566

&lt;400&gt; 226

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TTTTTTTTTT ttttttagag atcataaata cttttaatat cagataaatc attaagaaat 60
tgcattctgt acttgatgac cacacgggaa ctttgctaga gtcaagagaa cttgtcacta 120
gtaattatga agacacctt acggtgagcg ttattaaaac cctactagag gttttgggtg 180
ggactcaaga gcaaggggtg gccacctgtg gacgagggtt ccctgttggt aacagaacac 240
gttggccacc tgcgaagtat gcagcccaat cagtccccag ggtctcggtt cccgttgccg 300
ccttccccat ggccactgcg ctcatcatg agcctagggg gatcaggcct ccgg      354

```

&lt;210&gt; 227

&lt;211&gt; 402

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA460651

&lt;400&gt; 227

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TTTTTTTTTT ttattgcttt ctaacatctt ttacttcttg accttttgaa acatccaaaa 60
attagtagta gtataatcta tgtcacaatc ataataaac agttaagaaa aaacataaaa 120
tgaaggccta aaaagatctt tgttactcat ctagaattat ttggtataac agtatTTTcc 180
catggaggaa gacttggtt tcaggcatta aacaacgcag aaaaaaatct caaggcatca 240
cagggagagg gagataactt ttgactctgg tttcccggtt ttcaggccag gaagagcaag 300
gggagaaaaa tttttgtcca tggaacaag taatcatgct ctaaaggaca atttcattcg 360
aatccattca tttccttttc atgcaaaatt tcaaagataa ag      402

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&lt;210&gt; 228

&lt;211&gt; 384

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA460914

&lt;400&gt; 228

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tttttttattc caatgaataa taatcacact ttaatatataat aacaaacata caatacatta 60
aagttagaac actactttga taagacaatc atactcaagc taagatacaa ggtacagaca 120
tactgaaatt gtaaagtgac cattttaatg tttgatattt acttctctta ttggcacaag 180
actaataaga tagatgggtt gtattactct taaaatctaa gacttctcct ctagctcagg 240
gaaaatactg gtggaaacct gttttaccca aaagcagctt taatatctgt ttaaccagg 300
tattctataa taagaactcc attttaatgc acgttatcca ttacaaatgt gtgagatatt 360
ctataaaaaca catatttaaa ggtc 384

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<210> 229

<211> 391

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA461300

<400> 229

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gaaacaatta gcagtcttga agtacacatt gaatacaaat taatttgatt tcagtaggca 120
catttcttgg aacaaactga agagtactta aaagatccca ttgaatgcat gtggcattat 180
tcctagttta cggatactgt ttgaactaaa tgaatcctgg gagagggcag ttagtaatta 240
atgcatttag aaactgatag cgctaaaata ttaaaactta tgcattccaa tgtttacatg 300
tgtatgtgtg tgtgcacatg tgattctgct ttgcctgttt tactatctta atgattatcc 360
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<210> 230

<211> 298

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA461453

<400> 230

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gggaaggacc cggcaccctc cctgaactt cctggctact catttccagc gaagtttaat 180
ctatttttaa taatcgttca gttttcaagg aaatggagga gctgtttttt cccacggagc 240
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<210> 231

<211> 420

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA463311

<400> 231

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cttcatcttc ctggacgtca gcagggactt cgtggccagc ggggcggagg accggcacgg 360
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<210> 232  
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 <212> DNA  
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<220>  
 <223> Genbank Accession No. AA463693

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 cagccgcccg gccctgggtg tttcctccag gaaaggcctg gtcagtgaat gcctgcaggc 180  
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 tgtcatgaag tca 253

<210> 233  
 <211> 346  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA463726

<400> 233  
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 ctgcttcttt agtcttagca tgcttaggat taggtggagt cttctctttt acatcagagc 180  
 catctccacg ctcactccga gtcttttcca gatccatttc ctggcaatca ccttctactt 240  
 tacgttcttc gatcggagggt gttccttctc tctcttgtcc aggttcaata tcctgattgt 300  
 cagttgggtg ttcctcttgc tgagattcac cgggagccac gaatgc 346

<210> 234  
 <211> 315  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA464728

<400> 234  
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 tcaatcctta aaattagtct tcaatgctat gtatttttagc tatgtaactt gtactgtgtc 180  
 aacagtgaac cttattagat tcacgggtgtc atcgaactta tagcaagata aaaatcaatc 240  
 agtaggaatg tcatttttaa aagtaaaata gtgggacggg tgtgggtggct catgcctgta 300  
 atcccagcac tttgg 315

<210> 235  
 <211> 302  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA465093

<400> 235  
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ccagaagaaa tctaaaaata gcttcctgat attttatttt aaaatatattc atttaagctg 120  
cttttggttg catgccctga tctgtagaag ttaacaagga aataaaattt ccaagtattt 180  
aaaaaattta ctcatcttcc ataaagcgac ttttaatgta tcaacactta aaaatacaca 240  
gtgacttaat gaagtatcag cacaactgca tagaattgag ctccagagaa ttatacactc 300  
ga 302

<210> 236  
<211> 296  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA465394

<400> 236  
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tgcatgtttc cttttatatg aacctcataa tcgaacaaat ctcatctatt gtgacataag 120  
tcagaatact ggtcttctga tataaatcag aatactgggc agggagagaa tctgggtcag 180  
agcacaggag ggcttctagg atcctgatct gaatagtggg tatatggctg tgttcaatgt 240  
aaaaattcat tacgttgtac ccttaaggat tttgcatttt gtgtgtatta cacatc 296

<210> 237  
<211> 519  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA465491

<400> 237  
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ggaagctggg ccctgctccc ttgcagggga ctctgcccag ctggaagggg cagcagctcg 180  
gcaggccctg accggcaagc gggcatgcag gcagcccagc agcagctgag cttccagaat 240  
tgcacagcag tgggcctgtg gagaggctgg cgtcaactga aggagaactg gagggctgac 300  
acgcttggct ggcgggcagg caggcaatgg agcagagggc acgggcctac gagagggcgg 360  
ggcggccagc ggcaagtggg tggcccgaag gcactgttcg ccgccggtgc cactctgcag 420  
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<210> 238  
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<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA476944

<400> 238  
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acatttccag tgtaatgaga gataaagagg aatactgcc accgaggaaa tgactttctt 180  
caccatgctg accacactgc acagcgcccg atccggctgg tgaggatggg gaggtgggaa 240

gaatctcaaa gcactggaca ggggtgaggac tcaggaagtc acgggggtcag cccta 295

<210> 239

<211> 437

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA477767

<400> 239

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tggcgtctgt cctggccccg cctgtcagaa gatgaacatg tatagtggct aacttaaggg 180
gagtgggtga ccctgacact tccaggcact gtgcccaggg tttgggtttt aaattattga 240
ctttgtacag tctgcttggt ggctctgaaa gctgggggtg ggccagagcc tgagcgttta 300
atttattcag tacctgtggt tgtgtgaatg cgggtgtgtg aggcacgcga gatgtggggg 360
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<210> 240

<211> 451

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA478778

<400> 240

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<210> 241

<211> 378

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA478962

<400> 241

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acttttgataa ttttaaccat acataaaata tggagtaatg gaagctatgt tacatggata 180
ttttacaaaag gaaaaaaaga tgactttttat aataacacat ccagatgaaa tttatcatta 240
aattttggat ttcatatgat gttaagtatg gatataattca aaacaattac tttttataga 300
accaatttga tattttgtca tttaaaataa tgaatactat gtaaagtatg acttataaaa 360
atattttttag gcaaaaag                                     378

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<210> 242

<211> 372  
 <212> DNA  
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<220>  
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 acctgttggg tcttggctgt tgggatgata attcttttgg gtgaggggaa cagccgtggc 180  
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 tgtttttact ttcgcaccaa caatacaaca taagtattgg gtacaaaaga ggagatttcc 300  
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<210> 243  
 <211> 501  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA479286

<400> 243  
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 aatatgtttt tgttggtgtt gttatagttt tttgcattcc ttctacacca gagaatgaag 180  
 acccagattc ttagaaataa agccaaactg gcattcatct ggtttctcac agcatcagtt 240  
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 tccaattatt tgttggtctc actaactctt caagcctggg gtggctgtag gaacagtaag 360  
 cacagtggcg gtgttgataa ctgacgtgat gtgggctaaa cagacatggt aagtcaaaac 420  
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 actttaatga atatagacag c 501

<210> 244  
 <211> 403  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA481407

<400> 244  
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 ttaatatctc tgctcttgtc ttcaacagac atactcagca ttatacttg taaatagaat 180  
 tgagtttcca ttgtttcgtt tcctgttttt gtttccttag gaacaagagg atgaaggaaa 240  
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<210> 245  
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 <213> Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA485965

&lt;400&gt; 245

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aggcacatag gctgattaat cagtggacaa cagaagcaaa ctgctgctgg gttacatgtc 180
tacgtgatcc attccacagt ttttaggaatt ttttttcttt catagcatct tcctcttttc 240
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ctgccccaat cc 612

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&lt;210&gt; 246

&lt;211&gt; 230

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA486072

&lt;400&gt; 246

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ttttatgggt gcattgagaa ctttaatggt aagccgattt ttcattgttg ccagtaagct 60
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tagaggatag tgacttcctt cctggtcaca gagccctggc aaagcaaggc aaagccagag 180
ctcagaacct agagacttcc ttttgacaaa gcagcgcctc agaagctctt 230

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&lt;210&gt; 247

&lt;211&gt; 208

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA488072

&lt;400&gt; 247

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ttttatTTTT tttttttttt agagtttgat tgccttttatt atgaatataa aatgtacata 60
caatacaata tacatttata catttacagt ttgcatttcc tttcatcttt tttgagcaaa 120
ttcaattctg catgtcccag tttgccgctc cttccactga tttgacttta cactcatgac 180
gttctcttca cttgggtact ctgtgtac 208

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&lt;210&gt; 248

&lt;211&gt; 469

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA488432

&lt;400&gt; 248

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ctgacatacg gataaacttt tattgacata ccaaagagaa accaatattc actgaaggct 60
gccgaatccg tatttctaag agtaaagggt tttaattgac tctccacact taaagcactt 120

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tgtatgaaat atagctacaa atatacataa agaattcaga tcacaaaact ctctaggaca 180
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taaaaataca aaaaattagc cggatgtggt ggcgggcgct agtagtccca gctactcggg 360
aggctgaggc aggagaatgg cgtgaacctg ggaggcagag cttgcagtga gccgagaccg 420
cgccactgca ctccagcctg ggcaacagag caagattctg tctcaaaaa 469

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&lt;210&gt; 249

&lt;211&gt; 231

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA490341

&lt;400&gt; 249

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tttttttttt tttttttttt ttaggaaaga cccttttatt ggggtggaca cggagcacgc 60
actagtccat gataaaaata aaatgactca agagaaagat cgcaagggcc gacttctccc 120
caacgtgctg gcacgctgag tgaggtctgg gcatgggaaa gttccggggc acggtggggc 180
aagaccgagt ctcaatggcc tggatcggtg ttggggggga gaaggccact c 231

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&lt;210&gt; 250

&lt;211&gt; 505

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA490667

&lt;400&gt; 250

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aaaaaaaaaa ccaacaacaa caaaaaaacac cgcctttttg aaagagaaat gacagacaca 180
aaagactgta aagaaaatgg ggcgaaattc tgatagcatt tccccaggc cagaggcaaa 240
accagatca gacctggggg cccaatagtg atgtggcttc catagtacgt tgttcaccaa 300
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ctgcaggctc tgcagccctc cacacggaca cagagagagt tggagatctc tcccctacga 420
ccctccagct ccatccagtg ctagccctt tctccttcca ccccatggct ttgcttaaat 480
ctgtttcctt cctggggggtc ttgtt 505

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&lt;210&gt; 251

&lt;211&gt; 407

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA495865

&lt;400&gt; 251

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cagcgaaact cccttcctaa gatgcattct gcataggctg cctatgatga aggaccgtgc 300
acctccactc caacagagtg ctgagtttaa aagttgacct gtgtttgtaa tttcactttc 360
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 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA496247

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 tagggataaa aagaagaatg agatgaacac attacaatat gatgtaaacc actggtatgg 180  
 ttttcacaaa agtggaaaag atttaatcag tgaataaatg ctacaaatct gccaatcgat 240  
 ttttaacttc ccctaaatct atatttcgat aagcaatctc taagatttca actctacaat 300  
 atttgatgca caaaaacaca gaaaaatgtt ttaagggaag aataaattat ttttaagttag 360  
 tcagactgtt aagatatatt taaaaacctg tattccagaa caaaagtcac agatgactaa 420  
 cagaaaaaaa agaacgcacc tatatctggg taaacaaagc tatgtaatac acaattacaa 480  
 taaattatta tgggtataact ttggatactg ttatatattt 520

<210> 253  
 <211> 406  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA504805

<400> 253  
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 ccacaacagc ctgtcagtggt acgtgtcgta gattgtgtag ccgctcatgt cctctttcag 360  
 tgccctggaag tcgtgcttca ggtcatgacc caccaccagc ttgcct 406

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 <211> 423  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. AA505136

<400> 254  
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 aaaagggggg agaaataaat acaggattgg gtcattgta ataaaaatag catctctaca 180  
 tatacttttg ttttttaactc ttcattgcacc tttttttttt tcaatttttag ctgaatggac 240  
 accaagctag gcacatagtg aaaaatcctc tgtacaagggt tacaaatgta atgacaagtt 300  
 tgtccatttc aaaataagat ttgtacacaa cacataaaac ccttcattta gatcttgtgt 360  
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 gac 423

<210> 255

<211> 395  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA598695

<400> 255  
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gtttggccat gttccatcat taatgttcca acatcaccag ggacacaaag ctcagcatga 180  
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<211> 369  
<212> DNA  
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<220>  
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tgaaaactaa aatttccagc ccttgactat ctgtagtctc aaacatcaaa ggaaaatatt 180  
ggaacaattt atctatgtac agagagaggc aactcatggg taccataagc aaaataacct 240  
gagggggaac atttgatatt acaagaagtg gtgagagtctt acaagtcttg cattgctttc 300  
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<212> DNA  
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<220>  
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ataactgcct tgactgctgt gtggacaaag attccaagga tgtacttttg ctccatggga 180  
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<210> 258  
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<213> Homo sapiens

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<223> Genbank Accession No. AA598991

<400> 258

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gacgtcagat tacatggatc gctaataaac cgagctggac tagatccgac ttgatctaca 240
cacatgccac tactgtctcag ggccactgcg ccacgctggc caaggggtct gcactcacgg 300
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<210> 259

<211> 428

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA599120

<400> 259

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<210> 260

<211> 546

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA599216

<400> 260

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cccgggggac ccccttcctc tttgtgatgc ccagaaacaa tattgatttg attatagaaa 180
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cttatgatataaatgttaggc aaaatcgctg ttatgaacag ctctgttggg gcagagcaaa 360
tcctgggaag taacgctgag gctgttgggt caggcagtgg agtacaacat cttcgagggt 420
atggagtgcc acggctcccc actagtgggt atcagccagg gcaagatcgt ctttgaagac 480
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<211> 324

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA599331

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tgaggagtagt acaccacgta ggtaggtttg tactgggtttg gctttgtgta ctgtgttccc 240  
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<210> 262

<211> 271

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA599365

<400> 262  
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gttaccatac tcaaagttaa gatagggaga ggtagaagaa atagctgaga acttgaaaag 180  
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<210> 263

<211> 317

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA599522

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gttcgcgttc atgctcttgc cgctgccgct gagcacgatg taggggggtct tctgagcctt 180  
ctgcttctcc tggagcaggg ccacggtgcc caggggcgtg tcgctggagc tcatcttctt 240  
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<210> 264

<211> 226

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA599661

<400> 264  
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acacttacag cagacaaaaa ctgccccacc cctaattccc tccttgaatg gaaacaaaaat 180  
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<210> 265

<211> 273

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA599662

<400> 265

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<211> 281

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. AA609006

<400> 266

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<211> 467

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<213> Homo sapiens

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<210> 268

<211> 399

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<213> Homo sapiens

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<400> 268

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&lt;210&gt; 269

&lt;211&gt; 387

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA609312

&lt;400&gt; 269

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&lt;210&gt; 270

&lt;211&gt; 353

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA609504

&lt;400&gt; 270

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&lt;210&gt; 271

&lt;211&gt; 424

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AA609645

&lt;400&gt; 271

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cgcg 424

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<210> 273  
<211> 487  
<212> DNA  
<213> Homo sapiens

<220>  
<223> Genbank Accession No. AA620289

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<220>  
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<220>

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<210> 276

<211> 464

<212> DNA

<213> Homo sapiens

<220>

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<212> DNA

<213> Homo sapiens

<220>

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<212> DNA

<213> Homo sapiens

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&lt;210&gt; 279

&lt;211&gt; 1201

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AB000584

&lt;400&gt; 279

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&lt;211&gt; 6289

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AB002335

&lt;400&gt; 280

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<211> 760

<212> DNA

<213> Homo sapiens

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<223> Genbank Accession No. AF001294

<400> 283

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<211> 3111

<212> DNA

<213> Homo sapiens

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<223> Genbank Accession No. AF010193

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&lt;210&gt; 285

&lt;211&gt; 1601

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. AF141349

&lt;400&gt; 285

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&lt;286&gt;

&lt;211&gt; 330

&lt;212&gt; DNA

<213> Homo sapiens

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<223> Genbank Accession No. C02016

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<221> unsure

<222> (1)..(330)

<223> n = a or c or g or t

<400> 286

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<211> 2589

<212> DNA

<213> Homo sapiens

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<223> Genbank Accession No. D10522

<400> 287

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<211> 332

<212> DNA

<213> Homo sapiens

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<223> Genbank Accession No. D11824

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<222> (1)..(332)

<223> n = a or c or g or t

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<211> 4211

<212> DNA

<213> Homo sapiens

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<223> Genbank Accession No. D13628

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<223> Genbank Accession No. D13643

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&lt;210&gt; 291

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&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D14826

&lt;400&gt; 291

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&lt;211&gt; 3406

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D21063

&lt;400&gt; 292

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&lt;211&gt; 605

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D23662

&lt;400&gt; 293

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&lt;210&gt; 294

&lt;211&gt; 996

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D28137

&lt;400&gt; 294

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<213> Homo sapiens

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<212> DNA

<213> Homo sapiens

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<223> Genbank Accession No. D28589

<400> 296

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<210> 297

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<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. D29805

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&lt;210&gt; 298

&lt;211&gt; 300

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D31134

&lt;400&gt; 298

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&lt;210&gt; 299

&lt;211&gt; 2104

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D42073

&lt;400&gt; 299

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&lt;210&gt; 300

&lt;211&gt; 419

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D45370

&lt;400&gt; 300

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&lt;210&gt; 301

&lt;211&gt; 3233

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D50928

&lt;400&gt; 301

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&lt;211&gt; 404

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D51060

&lt;400&gt; 302

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<211> 283

<212> DNA

<213> Homo sapiens

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<223> Genbank Accession No. D51069

<400> 303

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<211> 347

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 taaaabtytt cttcaccttt ttaaaagctt catttgcaag ggcaggvcat gtacctaaaca 240  
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<210> 305

<211> 293

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. D60755

<400> 305

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&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D62584

&lt;400&gt; 306

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gaacacaatt attattctaa caatgattat tagctcattc acttattttg ataactaatg 180
atcacagcta ttatactact ttctcgttat tttgtgtgca tgcctcattt cctgacttaa 240
acctcactga gagcgcaaaa tgcagcttta tactttttac tttcaattgc ctagcacaat 300
agtgagtaca tttgaattga atatataata aatattgcaa aataaaatcc mtct 354

```

&lt;210&gt; 307

&lt;211&gt; 482

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D62965

&lt;400&gt; 307

```

aaaatatctc attaaaaagc ccataaataa taggggagaa gaaagcctta ggtatcaatt 60
ccaaaacagt gattgaaatt tcccaaaata attatggctt ctgtcatctc cagagataat 120
ctggccttgg ttaccccata atctaatttc agaaaagaaa gctttatatt aacactcatc 180
tgaatcaaca ttaaagcctt ttctctcaaa gcgtttattg agaaactcaa atgaatatac 240
tttttgaatt actgtcatca aaagtgtacg gcttcctgtg ctgcttgtgt caaatggaac 300
ctgccctcta aagcactttc tttcctttac ttgcgtggtt tcatgtaagc tgtgctgttt 360
agaacaacat ctcagacttt acaaagaatg acaagaaggc aattgcactt tttagggata 420
tcgccaagca gtttctgttt tctaaaggcc aaaatacaga gtgtgtgtca tttttattag 480
at 482

```

&lt;210&gt; 308

&lt;211&gt; 383

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D80059

&lt;400&gt; 308

```

gggtctgtga gccaataaaa ctttatattac aaaagcaggc gacaagtcag accyagcctg 60
attgggcctt gttttccaac ccttagactg catccacttt gagaaaagty ttgtcaaaaag 120
catcatttta gcgctttctt ttagaggcag ggtcctgaca actcttgatt aacacacaca 180
tccaggcact ttgtytctyt tcctccgttg tcctttkata aacaccaact ggcagagggg 240
acatggagca ttttttcttc aattgcagtg attccttkag ggaaaggggc cytcaggagc 300
attgttcaca ttctccgbyt tgtcctggga ggcagttaga ggatgtkgtc actccagaat 360
aatwtwtkk ktcacatact tyt 383

```

&lt;210&gt; 309

&lt;211&gt; 328

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

<223> Genbank Accession No. D80063

<400> 309

```
agttttttatt mpgaattgtc cattgaatgt tagctaaaac agtcaataaa aygcattamg 60
tgccagctgc atgcaagccc ctamgttaga tacaatcmgc cctcttcacg agcaggtcca 120
catcttcmga ttcaactmga ygcggctgaa tatttgamgg aagaaaaaat aaaaatacaa 180
atmgaamgaw acagtataac aacygttkcc attatacaat atctatacat ttcgtttagtg 240
atgacttcaa gtacayggga ccaggcacgg tgactcacac ttgtatycca acacttcgga 300
ggscaacctg ggagsatagt gagacctt                                     328
```

<210> 310

<211> 377

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. D80237

<400> 310

```
ccycatgcag ccccaaaggg vaaaaagrga ctttaattag gggagggagg atccaccaga 60
atcagaaaag ggacagytag cgtgggagca gaggrgccag aacaggcagg rggrggggccc 120
ggccaggaag ytytgrrgga ctacctcgc cacctytggc acaggcactg gactgacgg 180
acaagsgaa acagcgccc ctctcaactg grrgggcacc aatggcccct gtagccagag 240
gttgcccggc ttttggggcc caggctcctag gcatgactgg tggtcaccaa tttggccctt 300
ktccccaacc agtgctgggg ggccatcttt aggcagaact caggaagcct cgtscggaat 360
tcctgcagcc cggggga                                     377
```

<210> 311

<211> 295

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. D80617

<400> 311

```
aacaaacaat tgtgttttatt gacaagttca tacatcagta caaacgggca cgttaaaaac 60
agcggccccc ccccatgcag ccgaggatga ggcaggaagc gccgcgacct gcacaaagta 120
taaaagttaa aaataagggg ctttcaaac agggcggggg caaatctgga gtggggcggc 180
ggttgcccgt ggccctcagac atgcagaagg ggacggggcg ccggccgggc cagcaggccc 240
cccacccaca tggggcagag ggcaggaaaa gggcgggcac attctcctcg tgccg      295
```

<210> 312

<211> 313

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. D81655

<400> 312

```
tctgccccga agccctcggc aggccctcct ggaggccccc gtgctgggtgg agtttggggg 60
ccagggggac aagttgcctt ctctctctgc cctggctcct cctgctgtct ggatgggtgt 120
gccctcctct gcccctgccc tttgggggtct gttcgtccgt cttttttgtt gttgttttta 180
tatattgaag cgcctggccc agccccccag ccccagccc cgcactgsgg ttaatttatg 240
tgttgtttta aatgcggctg ctctgcttcc tgccctctgt tctgcccgat ccchaawaaa 300
```

atgkgggggc ccc

313

&lt;210&gt; 313

&lt;211&gt; 1425

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D82346

&lt;400&gt; 313

```

cgcgagcgca ggtggccgca gcgtctccgc gcgcggccca agcccggcag gagtgcggaa 60
ccgccgcctc ggccatgcgg ctcccggccg gggggcctgg gctggggccc gcgccgcccc 120
ccgcgctccg ccccgctga gcctgagccc gaccgggggc gcctcccgcc aggcaccatg 180
gtgcagaagt cgcgcaacgg cggcgatatac cccggcccga gcggggagaa gaagctgaag 240
gtgggcttcg tggggctgga ccccggcgcg cccgactcca cccgggacgg ggcgctgctg 300
atcgccggct ccgagggccc caagcgcggc agcatcctca gcaaacctcg cgcgggcggc 360
gcgggcgcgg ggaagccccc caagcgcaac gccttctacc gcaagctgca gaatttcctc 420
tacaacgtgc tggagcggcc gcgcggctgg gcgttcatct accacgccta cgtgttcctc 480
ctggttttct cctgcctcgt gctgtctgtg tttccacca tcaaggagta tgagaagagc 540
tcggaggggg cctctacat cctggaaatc gtgactatcg tgggtgtttgg cgtggagtag 600
ttcgtgcgga tctgggcgcg aggcctgctg tgccggtagc gtggctggag ggggcggctc 660
aagtttgccc ggaaaccggt ctgtgtgatt gacatcatgg tgctcatcgc ctccattgcg 720
gtgctggccg ccggctccca gggcaacgtc tttgccacat ctgcgctccg gagcctgcgc 780
ttcctgcaga ttctgcggat gatccgcatt gaccggcggg gaggcacctg gaagctgctg 840
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tgtctcatcc tggcctcgtt cctggtgtac ttggcagaga agggggagaa cgaccacttt 960
gacacctacg cggatgcact ctggtggggc ctgatcacgc tgaccaccat tggctacggg 1020
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tcggcctgga gattctacgc caccaacctc tcgcgcacag acctgcactc cacgtggcag 1260
tactacgagc gaacggtcac cgtgcccatt tacaggtacc gccgcggggc acctgccacc 1320
aagcaactgt ttcatTTTTT attttccatt tgttcttaaa ccccactttt tgttgttcat 1380
tatttttgatt gatttttttt ctttaaaatg tatttttcac aaagg 1425

```

&lt;210&gt; 314

&lt;211&gt; 493

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D82534

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1)..(493)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 314

```

aagcagtatg cctgtttgca cgattttaact aacaagggca ttggagaaga aatagataat 60
gaacacccct ggactaagcc tgtttcttct ganaatttca cttctcctta tgtgtggatg 120
ttagatgctg aanatttggc tgatattgaa natactgtgg aatggagaca tagaaatgtt 180
gaaagtcttt gtgtaatgga aacagcatcc aacttttagtt gttccacctc tggttgtttt 240
agtaaggaca ttgttggact aaggactagt gtctgttggc agcagcattg tgcttctcca 300
ncctttgcgt attgtgggtc ctcattttgt tgtacaggaa cagctttaan aactatgtca 360

```

tcactccan	aatcttctgc	aatgtgtaga	aaagcagcaa	ggactagatt	gcctagggga	420
aaagacttaa	tttactttgg	gagtgaaaaa	tctgatcaag	aaactgggac	gttggttactt	480
cctgtttcct	cca					493

&lt;210&gt; 315

&lt;211&gt; 3198

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. D83018

&lt;400&gt; 315

ttgggaggag	cagtctctcc	gctcgtctcc	cggagctttc	tccattgtct	ctgcctttac	60
aacagaggga	gacgatggac	tgagctgac	cgcaccatgg	agtctcgggt	cttactgaga	120
acattctgtt	tgatcttcgg	tctcggagca	gtttgggggc	ttgggtgtgga	cccttcctta	180
cagattgacg	tcttaacaga	gttagaactt	ggggagtcca	cgaccggagt	gcgtcaggtc	240
ccggggctgc	ataatgggac	gaaagccttt	ctctttcaag	atactcccag	aagcataaaa	300
gcattccactg	ctacagctga	acagtttttt	cagaagctga	gaaataaaca	tgaatttact	360
attttgggtga	ccctaaaaca	gaccacttta	aattcaggag	ttattctctc	aattcaccac	420
ttggatcaca	ggtacctgga	actggaaagt	agtggccatc	ggaatgaagt	cagactgcat	480
taccgctcag	gcagtcaccg	ccctcacaca	gaagtgtttc	cttacatttt	ggctgatgac	540
aagtggcaca	agctctcctt	agccatcagt	gcttccatt	tgattttaca	cattgactgc	600
aataaaattt	atgaaagggg	agtagaaaag	ccctccacag	acttgccctc	aggcacaaca	660
ttttggctag	gacagagaaa	taatgcgcac	ggatatttta	aggggtataat	gcaagatgtc	720
caattacttg	tcatgcccc	gggattttat	gctcagtgcc	cagatcttaa	tcgcacctgt	780
ccaacttgca	atgacttcca	tggacttggt	cagaaaatca	tggagctaca	ggatatttta	840
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tattgtgaaa	ggacttgac	catgaaggga	accacctacc	gagaatttga	gtcctggata	960
gacggctgta	agaactgcac	atgcctgaat	ggaaccatcc	agtgtgaaac	tctaactctg	1020
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gaatgcaa	cgatatgcca	atttcaagga	cgaacctact	ttgaaggaga	aagaaatata	1140
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cattactgtc	gtgaaaatac	aatgtgtgtc	aacaccccg	gttcttttat	gtgcatctgc	1500
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cgtgctaatt	gcattaacct	gcctggatgg	taccactgtg	agtgcagaga	tggctaccat	1860
gacaatggga	tgttttcacc	aagtggagaa	tcgtgtgaag	atattgatga	gtgtgggacc	1920
gggagggcaca	gctgtgccaa	tgataccatt	tgcctcaatt	tggatggcgg	atatgattgt	1980
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aatggtcaga	tttgggtgtt	ggaaaatgac	aggtgctctg	tgtgctcatg	tcagaatgga	2100
ttcgttatgt	gtcgacggat	ggtctgtgac	tgtgagaatc	ccacagttga	tcttttttgc	2160
tgccctgaat	gtgacccaag	gcttagtagt	cagtgcctcc	atcaaaatgg	ggaaactttg	2220
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gttgattgtt	ggcccctgcc	ttgcccagat	gtggagtgtg	aattcagcat	tctcccagag	2340
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atcaccaaga	cttgcttgga	cgaaatgaat	gtgggttcgct	tcaccgggtc	ctcttggatc	2460
aaacatggca	ctgagtgtac	tctctgccag	tgcaagaatg	gccacatctg	ttgctcagtg	2520
gatccacagt	gccttcagga	actgtgaagt	taactgtctc	atgggagatt	tctgttaaaa	2580

```

gaatgttctt tcattaaaag accaaaaaga agttaaact taaattgggt gatttgtggg 2640
cagctaaatg cagctttgtt aatagctgag tgaactttca attatgaaat ttgtggagct 2700
tgacaaaatc acaaaaggaa aattactggg gcaaaattag acctcaagtc tgcctctact 2760
gtgtctcaca tcaccatgta gaagaatggg cgtacagtat ataccgtgac atcctgaacc 2820
ctggatagaa agcctgagcc cattggatct gtgaaagcct ctagcttcac tgggtgcagaa 2880
aattttcctc tagatcagaa tcttcagaat cagttagggt cctcactgca agaaataaaa 2940
tgtcaggcag tgaatgaatt atattttcag aagtaaagca aagaagctat aacatgttat 3000
gtacagtaca ctctgaaaag aaatctgaaa caagttattg taatgataaa aataatgcac 3060
aggcatgggt acttaatat ttctaacagg aaaagtcatc cctatttcct tgttttactg 3120
cacttaatat tatttggttg aatttgttca gtataagctc gttcttgtgc aaaattaaat 3180
aaatatttct cttacctt 3198

```

<210> 316

<211> 217

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F01920

<220>

<221> unsure

<222> (1) .. (217)

<223> n = a or c or g or t

<400> 316

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aacagggata ggcaaacagc tctttattcc aactccatta gtgatatgaa agaaagacaa 60
tccaagtcag taatggaaat atgcaagang ttcaatttag gtgagggtgaa tttttgcatg 120
tgctttaacg gttgaggttt agtgtatat gtacttttta cccttaaggc caagtaattg 180
gcaactgtga accattaatg taaaatattg ataataa 217

```

<210> 317

<211> 205

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F02204

<400> 317

```

caggagaagc ctgtttatta ggcaggagaa gcagcagggc agccaggctc ccctcccagc 60
caccagctgg ccaaattgtc tcccttaact caggggtacc caaggctcca tggccatgtg 120
accagaggcg tgtaccctca agaggcggcc cctcagccct gggcagccca gccactgggt 180
ctcgccttc aggggcctgc gccc 205

```

<210> 318

<211> 298

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F02245

<400> 318

```

gggggtggca gtgcacttta ttaacaaaca aaacagtacc atacaggcaa aatcttactt 60
cagtggcaaa gcacacacat aggtatactc caacgtgtag cactggggca aacttcagac 120

```

atggaacatt aggcaccaag ttcacaatca cactaaacat agttcacaat ccttcaatcc 180  
 atactcttca gtggaggatg aggccttatt taacagttaa ctgggacaga cagatgaagt 240  
 tttaaaatct aattcttggc ctaactgtgg agtggggctg actcagcctt cagaactg 298

<210> 319

<211> 212

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F02333

<400> 319

gcattaacag taacccaag aaaggcatca gggttctgga gtgggtggtt gagtgacaca 60  
 gcacaaggcc ttgatttcat catgcttttg ctgtggatgt agtgtagctt gctgaacagg 120  
 tatggaagct gtctttgctg ttaagtactt ctcccgtttg tttatcaacc tgcagctaac 180  
 aggatgtctg cttttttaca gggtttatttc ac 212

<210> 320

<211> 221

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F02470

<400> 320

gtttcacatg agtgaaaaaa ttaacagctg ccctcatttc tgaaaacaaa aaactataaa 60  
 caatcactgt tgctcccaat gggaccgttg gacataagcc ctgaggcttt ggggtcaacg 120  
 ggctagactc tagaagccca ggaccccgcc aagggtcatgt ctgcatactt ggggcagggc 180  
 gagctgttga accatcgcat ttctctgctg cttctttaca t 221

<210> 321

<211> 312

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F02992

<220>

<221> unsure

<222> (1) .. (312)

<223> n = a or c or g or t

<400> 321

aagaatttta gtttttttct tccccagac tttttttttt tttttttttt tttttttaag 60  
 gaaaaaaacc cccgccaaat ctgaaccgctg ttgtagctcg gtccccgcct cctcagcggg 120  
 ctgtcgcgtg caacaaacct cccccatcat cttagaaaaat aattatagag cgcggcgccc 180  
 cgccctcgnt cctgccagtg ggcgnttttg tcctattttt tggattattt cattacgaag 240  
 cacgtgaatg aatctagccc ccacaccttc aagaaagaaa ctgcgcggact ggggttgaaa 300  
 agcccagggtg gg 312

<210> 322

<211> 202

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F03254

<220>

<221> unsure

<222> (1) .. (202)

<223> n = a or c or g or t

<400> 322

```
attcatgggc gantattatt tattgtcaga aagggtacagc attcacacca atatcagaca 60
aaatagattt taactaaaaa attatttcgn gacaaaaata acaatatatg tnaataaaaag 120
gctcaattaa aaatgtataa caattataaa cacatacaca tcaaacaaca gtncccaaaa 180
atacataaag caaacattga ca                                     202
```

<210> 323

<211> 305

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F03969

<220>

<221> unsure

<222> (1) .. (305)

<223> n = a or c or g or t

<400> 323

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gaactttggg aaaattatatt atttctcccc acgggggttca gacaagtaat ttcacatttc 60
attgtaagtc aagggttaaga aaacattttt tgtacatcca tcactaatag agatcacagt 120
atgtcaatga aatattttaa tacactgtac agagattgct ttttaattga tttctataag 180
tagtattaat aggaaaaagc atataatata atctactctg tatctaagag ctttaattta 240
ttcaaataat ggaagaaatt catctnctga attttnctta tttaaaaagc attatgagaa 300
ctgat                                             305
```

<210> 324

<211> 335

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F04112

<400> 324

```
aatagagatg ggggatctca tcgtcaccca ggttggaatg cagtgatacc atcacagctc 60
gctgcagcct ccacctcctg ggatcaaccc ctacctcatt ctcttgactg ggactacagg 120
cactcaccac cacactgggc taattaaaaa aaaaaattct tttttgtagg gaagtgggtc 180
tgctatgtca cccagggttg tctagaactc ctgacctcaa gtcacccgtc cgcattatcc 240
tcccaaagtg ctgagattac agacgtgagc cactgcactt ggcctattta gggcttctaa 300
ttcactttcc ttttccttct tgtctaattc ttgtg                                     335
```

<210> 325

<211> 178

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F04492

<400> 325

```
gtagagacgg agccatccat gtttcccagg ctgggtctcga actcctgggc tcaagcaatc 60
ctgccgcatt ggccctctcaa agtgctgcga ttacagggtg gagccattgt gcctggccaa 120
aatgtgtatt tttaatatgc tgctgagttg actcttgtat gatcaggagg agcatttg 178
```

<210> 326

<211> 211

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F04816

<220>

<221> unsure

<222> (1) .. (211)

<223> n = a or c or g or t

<400> 326

```
gatgtaacat ttgtnathtt attggaaaaa gctgggtatta acatatthtat agttttattc 60
aacaattggg taatttgtga gacaccaaag aaaaaaagaa tgcacctatg agttacagag 120
tccaaactga tcagggtctga caacttgacc accatgtntc ccacaccacc acccccacca 180
ccaccaccac caacagcttc gtcctcagag a 211
```

<210> 327

<211> 276

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F09281

<220>

<221> unsure

<222> (1) .. (276)

<223> n = a or c or g or t

<400> 327

```
actgttttaa tataattgaa gtttttnata tgatgaagtg ctccataatt taaatgtaaa 60
aaaccaatag gaaatatatg aaataaaata aaattatacg taaaagtgac aatgcctcta 120
ttagatttaa cagtatctta caatagaata agttgaaacc tacaaaatgg aagaaagttt 180
aaaattaggc agatattatc ancctgggtga agaataaata catatgtcaa taagcattta 240
atgtatttgg tcttagattt tacatgaaat aataaa 276
```

<210> 328

<211> 293

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. F09315

<400> 328  
 acagaaattg acctttatctt gttgtactaa agcctgttta acttttgata caaagtaaca 60  
 ttttagtaca gaaaatccca gtctgtcagc tcagtacctg tctgtgcaca ctgtaccatc 120  
 tcagtccac tctgcctgta acttagaaaa cagcccctac cccagaggt ctgagagtta 180  
 ataccttgag aatagtctac agtttttcat agtttgtctg agctagaaaa cttgtacctg 240  
 taaaacaaag gacagcattg aggactgaaa cttgtctctt ttttgaacaa ctg 293

<210> 329  
 <211> 214  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. F09684

<400> 329  
 gctttacata aacttataag gattttttat ttaaaggatt taaaaatata acacagtcaa 60  
 tataaacatg tactgggaat tataaacat tctttcttct aagcactgga tgagatacta 120  
 aaaacatata gtatcttacc aatagccatt aaaataggct aaaatgaaaa agaaaccgtt 180  
 gtaacaagggt tactaatccc ccaactttca atgc 214

<210> 330  
 <211> 332  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. F09748

<400> 330  
 gaatgaaaga atccagcaga tattttattaa gcaagatgaa agtgaaatta caaacacagg 60  
 tcaactttta aactcagcac tctgttgag tggagggtgca cggtccttca tcataggcag 120  
 cctatgcgag atgcatttta ggaaggagc tttcgtgct cagaaatcaa agctccatcg 180  
 gaggtgtcct actggaggca tcagacaaca agctaaatga cgtaggggt acacaacaca 240  
 aaggggaaag ttgacaacaa ttcaggggct ttgagtagtc aagacaatta gcttagtact 300  
 tcagggtcaat aaatgctaca atttatgggc aa 332

<210> 331  
 <211> 247  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. F10078

<220>  
 <221> unsure  
 <222> (1) .. (247)  
 <223> n = a or c or g or t

<400> 331  
 catgccttga ggaaagctat ttattttcaa gatatagact gtacttttaa gacaggactt 60  
 ttcagaagca ggaaatttta gttgttgcca gagagggtgtg tcaaggacac agtgaaagga 120  
 gccatgcgga catgggggtgg aaggccttnt ccaacactgt tacaacactt ttgtaaatga 180  
 gcaaaacatc tttaaaaatc cttataaatt ctttataata tgttacacat ttagagacaa 240

tattttac

247

&lt;210&gt; 332

&lt;211&gt; 243

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. F13763

&lt;400&gt; 332

```

ttttttttttt actttaattt ttctttttatt ttcactgaca gaaaaatttt ctggagagta 60
caatcaagat agtgtattat tagaaataac attaatagaa gcttggtcag aaatgataat 120
agtcataata agcatctctc tcaccaaggc attccacaca gagagatcac agcacaataa 180
ataaaggatt tctcatttgc cacacaacaa ataaaacaat tgcagtaaca aaaatatgac 240
ttt                                                    243

```

&lt;210&gt; 333

&lt;211&gt; 415

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. H01824

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1)..(415)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 333

```

attcacaana annnntttta ttattcttaa cagtactcac tttaaaggaa taagaggata 60
gcatacathtt ttacagaca atatataaat gttgtacata attaacaata acttagttca 120
ctaattccaaa ataaaacaag ccaaataaaa cataaaaaca gaaaatactg ccgnttcttt 180
ttcttatgcg ggacactagn tacaaaataa gttacttctg ggccgtgggt gtcacctgca 240
ggcgactgcc cgcccatatt gcacttgggt cactaacatc aggcacaatc ctctccggg 300
ggccggggcc ccttcancag ggcccaccac accccgccgt tcaccggcat tacaggaatc 360
ttaggcttgg gggacagggt tattattaca gctgttacct tggggggngg ggttc      415

```

&lt;210&gt; 334

&lt;211&gt; 309

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. H02308

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1)..(309)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 334

```

tgatagcaca ttttagtttt taataaaaatc tgctttttac ttatatattaa ataaattgcc 60
cagttactga atcagaagca tttcttacia agcaaacaaa ataagcatcc cttctatggt 120
aataacatgt taatagtatg ttggcaaggt gatttagaac aacttgccaa caatacaaac 180

```

```

agaaaaaagg agtgggtcaa agaaatctag tttggcttta ttttcaatag atcatactgt 240
ctgttgaaaa aggaataaat aattatggag cctatctaataaatatactca atagn ttgaa 300
attattgag 309

```

```

<210> 335
<211> 277
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. H03387

```

```

<220>
<221> unsure
<222> (1)..(277)
<223> n = a or c or g or t

```

```

<400> 335
acgcaagtta gannanttat tatgataact ctgcaatcctt ttcagccact ctttaagggtt 60
cctgggcatc cattctgggc acagtgtgac atttacctga acagagagga gantggcact 120
agaagatgag ggagatttgg tgcctaaaaa ttactacaaa caggcagggt gcagtggctc 180
acgcatgtaa tcccagcact ttgggaggcc gaggtgggtg catcacgagg tcaggagttt 240
gagatctgcc tggccaacat ggtgaaaccc catctct 277

```

```

<210> 336
<211> 372
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. H05084

```

```

<220>
<221> unsure
<222> (1)..(372)
<223> n = a or c or g or t

```

```

<400> 336
tttttttttt ttcacagtga gcattaaatt attattccat acagccctgg ccctggccct 60
tcttgaggga gtggggtttn tggggtn tgc ccagcaggga tcctgccaga tgatgtccac 120
atgagaaggc aggtgtccaa cagcttcagc ttcacccagt gccccccaga caaataatga 180
caagtccagg gtctttctgat gtgtcaggcc agcactcccc ttgctgatgg gaaaaccggg 240
gtcgcggccag cccactgca tcccctcaca tgatgatacg aggctctngc actgactcgc 300
caatagactt gtggggcagc angtgggtc cgttgaggta ggagctcatc attaactatt 360
gacgtcctnc ac 372

```

```

<210> 337
<211> 353
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. H05625

```

```

<220>
<221> unsure

```

<222> (1)..(353)

<223> n = a or c or g or t

<400> 337

```

tttttttttt tttttttttt gtttcacaaa tgtcaatttt attgacacta gtgcacaact 60
aaatacaata attgcaaagg aagtggaaacg tgttcaaaca gaaatgggtga caatgagtta 120
gaactgcagt tntttcaagg tactacacta ttattttaaaa aaaaaatcac aaanagaaaa 180
atgttatcac tacaagtagg gatttaggaa gngagnaaat tctgggcagt ctgtctagna 240
gggttaaaac atttcattggc atttgtgagt tgctgttgga gagttgtttt ttatttgcctc 300
accgtaatct gggcaacatc cgggggcctta cttcagctc tcggcactgt gcg 353

```

<210> 338

<211> 501

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H05704

<220>

<221> unsure

<222> (1)..(501)

<223> n = a or c or g or t

<400> 338

```

tttttttttc cttctgtagt cgtcttttatt tagagcagaa ttcagactca gctgggtatcc 60
cccaggggcaa cccagggatg ggganagggc tggctctgtcc ccacccactt ctccaggatc 120
ctcccagccc ccaggctgnc ttttccctcc aactgtcagc tgcttagctg ctcatctggg 180
gattggagct ggagcatctg tcaaggttgt ctccttgaca aacagcttcc tctttggaaa 240
tggcttcact caggtcctgc aggtcatcga gcaggacaga gagggacccg gggaaggaag 300
acagcagatg agcaccagac aaggggaagg gctcgtgggt acagagggaa acagggttgg 360
gcacagggaa atgaggggaat ggggagagag ggaggctctt tgggtccaag ctggggcatc 420
ncttaaaaga ggtttaaggg tntcgaagga ccncagagaa caacattctt cntgcgagat 480
ttttaagagg gagttttctn a 501

```

<210> 339

<211> 465

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H08548

<220>

<221> unsure

<222> (1)..(465)

<223> n = a or c or g or t

<400> 339

```

tttttttttca caaatattgg cttgggttttt atttctatgc ttataaaaaa aatatgaagc 60
ttcttttgtgt ggactgaagg ggtggttagcc tgtggatgtt ggtcttcggg gcctgtacct 120
cagtggctgt ttacattcca ggnccctgct aaataaagna ggctccactg ccagctgtct 180
gtacactttt tcttggggga agagttcttg tcttcagttt actgcagtag ggttcctggc 240
tctgttacat gctcatgtgt tccggaagaa catatgaaat atcatcccac ggatgacgat 300
acagcccctg cttcagcctn ttctgatcaa gatagntcc aatgaacccc atactccttc 360
ccagcacaaa gatgccattg agggctccaa tgtcaatatt attgcatcag cttcctcccc 420

```

agtaaagga cccacagttt tttaaggatg ttttacaatt gcgat

465

<210> 340

<211> 313

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H15143

<400> 340

```

tttttttttt tgtgggtcac agttgagggt ttattgccag tgttaggaag aatgggggggt 60
ctgggtggcc aggggtcttg ggaggaattc caaatgagca ctgcagggcc tgtgagtggg 120
gaggagagct gctgcccccc tgccacccag gaggccccag ggctgatgcc accatatcct 180
gactgctagt ggtgccttaa aaggtggcct cccacagga ggggagcctt gggggccccc 240
aggagtcagc cctcaccaac aagccctctc tcaagggggc caggggcttt tattcctcat 300
gggacaggct ggg                                     313

```

<210> 341

<211> 295

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H16171

<220>

<221> unsure

<222> (1)..(295)

<223> n = a or c or g or t

<400> 341

```

tttttttttt ttttttttaa ttaaaccacc ntatganttt attaaatcca gaactgtgtt 60
aaagggcggc ggtctncgag ggggagnttg gtagggggac gagggacaag atgatgaacg 120
gccgtgggca tccntaggng ngacccggnc caccgccgcc caaccaccc cctcngcaac 180
gctgcatcag cttcaccatg attcccagtg gtgctgggct gggcagggcg agatggctgg 240
gaaacacaga gggacagagg gacagacaga cgccttcac aaacaaacc tggncc 295

```

<210> 342

<211> 389

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H16676

<400> 342

```

tttttttttt gttttgtggt actacatatg ttttattaaa aattcaaact ttttttcaga 60
tcgaagcata atttatcttc cattaacaaa aacgaagatc tttaaattga cacgattaca 120
attaaaatgc tgaaaggagt tatgaggcat ttaaattcatt cttcaattag aatgtttgca 180
gcatatttct cagaggctga cctggaacac attacctttg ttggcaggca tcaaaggcag 240
gataaatcct gtggctggaa atcaattgtg agtcccatta ggatgacttt ctaggcacac 300
atgcataggg tcttgcactg tatccgttct acttctagga aggttgctgt ctggaaggct 360
ctttccctg ggcgagggtca ctttcccg 389

```

<210> 343

<211> 471  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. H16768

<220>  
 <221> unsure  
 <222> (1)..(471)  
 <223> n = a or c or g or t

<400> 343  
 ttttttttta atttataaaa atgaaaagtt tatttgtctc atggttctga caggctgtac 60  
 aagaaacatg gcaccaacat ctatttcttg tgagggcttt aggtctgttc cactcatggt 120  
 agaaggcaaa aaggagctgg catgtgcaga gatcacgtag ncaagagagg atacaaggag 180  
 atttccaggn ctctttttta cagtcagctc tcatgagaag taatagagga agnaagtcac 240  
 ttactactga gagagtggct ccaagccatt ncataaggaa tcaaccacca tgacacacta 300  
 gggcctcacc tccaaaactg gggaatcaca tttcaacatg aggatttggg aagggtcaaa 360  
 tatccaaact ataggcattc tacccttgga acgcctaagt atcctgtcct tctcacaagg 420  
 caaattacat tattttattc ccattagttt cccgaaaact taacttgttt t 471

<210> 344  
 <211> 354  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. H17333

<220>  
 <221> unsure  
 <222> (1)..(354)  
 <223> n = a or c or g or t

<400> 344  
 ttttttttta attgttaata ttgctaattt gtacaatggt taatgatctt ataaaaatagt 60  
 tgtatgaaag caccaaccac cttagaaagt ctgaccagca ttcatatcta ctttccagac 120  
 cctcatccct cctccccact cacctgactc tgctcggctc attcatgggc tttcctgtgc 180  
 tctgccattg ctcagggtgag tgagcagttc gcccggcaca ttgaccaggc agatccaggg 240  
 canccgatcg gtggagccca ggaaatggag aggctggcac agctgcagca atgcctgnaa 300  
 gctgtcctga ttttctccgg cttngagata gccaccactt ttgagcatta ttac 354

<210> 345  
 <211> 486  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. H17550

<220>  
 <221> unsure  
 <222> (1)..(486)  
 <223> n = a or c or g or t

```

<400> 345
tttttttttat ttttaaaaaat ctattttatatt atcaaaacag tattgggcaca gtaattctca 60
tattatcatc aaataataaaa attgctactt tctgtactca attccttaga atcctagaaa 120
ttgcaaattgc attcaattta acaatattgt aaataacaat acaaaagaaa gaactctgca 180
tattttatgga aacattgttg atgggtacagt tctactgaaa ctcatacaca tttcactatt 240
taattttacat atggnottggt tgaaaaaaaac cagtatgttt tacttttttca atttccttat 300
ggctaaaata catgtaattc taaaggggata tctcttgggt gttataaaaa ccagggaggg 360
tccaccacca ggtcaagggt ggngtcaagg ntacttcaaa ggttccctgg aatggatccg 420
gaaaacaaat ttttaaccna aaatgtggta ccgntttggg ggggcccttc ncgggcccc 480
caacgg 486

```

```

<210> 346
<211> 371
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. H18947

```

```

<220>
<221> unsure
<222> (1)..(371)
<223> n = a or c or g or t

```

```

<400> 346
ttttttttttt ctttttttag gnttcatggt tgttttatatt aaagtctggt tgggtacaga 60
aaacacacac acacttaaca ggtaaataa tccaaataaa atttactgca actttttag 120
aattttatatt gtgctacaag acacgttgca taagaaacta tttaaagccc ctgaggaaaa 180
aatatccatg gtttaagggt caactgggtt tgtttcttct ttggggaaaa ggtgatagat 240
gggtctctggg agaaattatg ggggtggagt gagaagcaca atcgaagggt atatgggtggg 300
atgattggcg aattgtgtgt cctgggttct tggcagcatt aaaatagcct aatgttttgt 360
tctttttttc a 371

```

```

<210> 347
<211> 187
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> Genbank Accession No. H21814

```

```

<220>
<221> unsure
<222> (1)..(187)
<223> n = a or c or g or t

```

```

<400> 347
ttattgaggg tttattgagt gcaggagaa gggctctgat gccttgggggt gggaggagag 60
accttcccc gggatcctgc agtctctagt ctcccgtggt ggggggtgag ggatgagaac 120
ccatgaacat tctgtagggg ccactntctt ctccacgggt ctcccttcat gtcgtgacct 180
gggcagc 187

```

```

<210> 348
<211> 432
<212> DNA
<213> Homo sapiens

```

<220>

<223> Genbank Accession No. H22453

<220>

<221> unsure

<222> (1) .. (432)

<223> n = a or c or g or t

<400> 348

```

ttctcttggt gctggagttg taaaaatcaa tgtccattg ctgagatcga agctccctgt 60
gtctctgggg ggctcagcag ggacgatggc ctccagagt gacctctgag aaattgcaga 120
ggcatcagag ctgtgggctc agcatatgag gtccccaggg gccatagacc cctcctcct 180
gggaagagtg ctctgcaga gcttatttgc aatctcctgg gaggccaga ctcaccaaag 240
gattcagatc ctcttctttt tgcctcctac atagagcaca ttatagacct gaaacaggaa 300
tcagaattcc agactccctt agtgaggaga caaagtgtta ggtcttagct ttttcccttc 360
taaattaagg gtcctccctg ggattcaggt tgcctgatag cttatncctg aaantggtn 420
gagataggga aa 432

```

<210> 349

<211> 233

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H26288

<400> 349

```

aaaaacacca gtttgaaaca cattactgaa agtgagtgt cacaataaat agaaaatagg 60
gatgcatagt gctggagaca ttcaaccaac ttatcttcat ctgttgcccta ctgttgtaga 120
caaaatttga cacacaatta gcattactga aagagcagcc aaactacctc ggagaaagt 180
ggcaaactac tggaaaagta gcttaaagct ctgggaccac tcaccaaaaa taa 233

```

<210> 350

<211> 290

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H27180

<220>

<221> unsure

<222> (1) .. (290)

<223> n = a or c or g or t

<400> 350

```

aggnntttatt ttggaccaa aaaaaaacca caattgtttt ctagctggaa gantgggcaa 60
gggggggtccc agacagtaaa ctccccacg ggtgggttga gcctcagggtg ggggggtctcc 120
tgttgtctgt gcttccccac acagcagcct ccctcctggn gtctgtggca gccacgggag 180
gggcagacta ggaggagctg ccacagtnt tcaattgggc aggaagtcag aggactcaga 240
caccagcttc ccatcgcggtg tntcgatctt cttanaaacc acggccctgg 290

```

<210> 351

<211> 292

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H27675

<220>

<221> unsure

<222> (1) .. (292)

<223> n = a or c or g or t

<400> 351

```
gtgtctccat ggcgagtggg agcgtgaaga tgaccagctt tgcggagagg aagctccaga 60
gactcaacag ctgtgagacc aagtccagca ccagcagctc ccagaagacc acgccagatg 120
cgtctgagag ctgcccagcc cctctgacga cgtggaggca gaagagggag cagagtccga 180
gccagcatgg caaaggntcc cgccagcctc ctggcatctg agctggtaca gtggcacatg 240
cantcgaagg agaagcgcag ggccatcgag gccaggaaga agaagatgga gg          292
```

<210> 352

<211> 327

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H40424

<220>

<221> unsure

<222> (1) .. (327)

<223> n = a or c or g or t

<400> 352

```
ctgtatantt tnncttnttt tttctcttgt gatttggcac ttaaggctta agcgcnaaaa 60
aaaaaggcat ctactgacaa aatatgggac ttgtctgtna tgcattggtaa gtgggctata 120
aaatccaggg aggggggtttc aagccagaag aagctactga caaattgact tgccttatg 180
ttaggtgggg ttatgagggg gagagggagg gcacattctg aggtgctggg ggaaaggggt 240
tgagcttaac cttgttaatg tagggcctgt ggggaatggg atgggtaggg agaagagggt 300
atgggatgtg ggtgcagggt aggggct          327
```

<210> 353

<211> 448

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H44631

<220>

<221> unsure

<222> (1) .. (448)

<223> n = a or c or g or t

<400> 353

```
actcagcatn cnttttatTT tncatcttga catttctaac aaaacgccag ggagacggag 60
ttaaaaagaa tccaccccac gaaaggtaaa caaaggagac cctcagaaac tccctggcaa 120
ggatgttccc ctcccagat tgggcccagt ttcaccagca actgggtctc agactcagcc 180
ttatgccttt cactgacac cccccacccc tccacantct cgtgattcag accaggaac 240
```

```

ttctcgggct gatttgtgtcc gtgtgtctga gggaggggca cgctggaacc tgggaaccta 300
ctgggcacct ctaatgcaga tgagaaaaac ttgagaatgt gaaaggagat cagtccccgn 360
tcccaccga aggtgcagag acgcgggaca ttaaccagca gnacgcgggg gtgaaggaac 420
tcagggcaat ttctcccant gccagggg                                448

```

<210> 354

<211> 346

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H48793

<220>

<221> unsure

<222> (1) .. (346)

<223> n = a or c or g or t

<400> 354

```

gatttaggag attccaagtg atacctttaa ttcactactc tatgtcctta ttaataaata 60
catatttataa aaaacctata caatatagtg tatttacagc atggaagagc agagactctg 120
aagccagact gcctgagttc aaatcctgac acttctactc aaatatgtgt gagtgacttt 180
gggcaattta cttactcttt ctgtgtttct atttactcgt ctacaacaat aatttctacc 240
tcatcaaatt aaattaaaaa aaaaacggct taaatagggt aacatttgta aataggctta 300
ggaaaacact acatttataa aaataancat tcctaaccce ccttcc                                346

```

<210> 355

<211> 458

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H49440

<220>

<221> unsure

<222> (1) .. (458)

<223> n = a or c or g or t

<400> 355

```

ggagtttcac catgttggcc aggctggtct caaactcctg acctcaggtg atccacctgc 60
ctcagcctcc caaagtgctg ggattacagg catgagtcac tgctcccagc cattagaaaag 120
attgttaatc ctatgaactc ccttttgtag gagagaaagg gccaatctgt aggggtagcc 180
ctgtccaggt aaagttgttt tcagcctcat gtctactggt aggtgagggg gtcacagcca 240
gacagagagt attgctggag ggtgagagaa ttgtggagac caactaccac atagcaagag 300
cccagctctt gggagcattg agatgtaagc tcagggttac acagttccaa atcttgggga 360
aggggctttt tcagacagac tgtttgcttt ctgctgagat taaggaattg catcantctg 420
ccagagtatt gactttttta cagattatta aataaagg                                458

```

<210> 356

<211> 446

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H52835

<220>  
 <221> unsure  
 <222> (1)..(446)  
 <223> n = a or c or g or t

<400> 356  
 cggataccct gggggcctct gctcctctct ttgtggagac gtcgtttcac cggcggcgcg 60  
 tgaccccggc agctgtccag agaccagag atgtccaatc acaggcgac ggtgcacagg 120  
 cgcgcagggc tgcctggaac gggcccaggc aggcagtgc cgggacctct ccggaggagg 180  
 aggaacggtg ccctcccggg aggagctggc caggcaggcg ctgcccaggg cggccttccc 240  
 tgctggacta cggcattgcn actgagttat ataaagacac tatttgggga aggacagcgg 300  
 gtgaggactn ggcgcggcgg cacacgcttt gcctgttgtn ttcagctctt ctgggggcca 360  
 aggcaggagg ttccagggtt tacagtgcgc ctgatngcca attgctttcc aaaagagaga 420  
 aacagagaga aagggtatna ggcttc 446

<210> 357  
 <211> 386  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. H54764

<220>  
 <221> unsure  
 <222> (1)..(386)  
 <223> n = a or c or g or t

<400> 357  
 gatggagttt cgctcttctt gccaggctg gagtgcattg gtgcaatctc ggctcactgc 60  
 aacctccacc tcctgagttt gagattctcc tgcctcagcc tcccactggg attacaggcg 120  
 cctgccacca cgcacagcta attattgcat ttttagtaga gatgggggtt caccatgaaa 180  
 atttttatth ttattaaaag agtgcattg ttagtcattg aggcagagcc agggcggcct 240  
 gcataccaaa tgtgaaggaa cagtaccaa tgacaaagga aggcacaaaa ctaggacaaa 300  
 ggaaaaggga cttcaattaa ataaggtaat ttggaactaa ctggaaaatt gagggagggg 360  
 aaatngcaaa taaaatnggg gaggca 386

<210> 358  
 <211> 384  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. H56673

<220>  
 <221> unsure  
 <222> (1)..(384)  
 <223> n = a or c or g or t

<400> 358  
 gttaccaaga cacaatttta agatcaaaca agtgtcaagg taggcatgg cttgttggca 60  
 gtagtagggg ccctatggct atttcagggt atgggtggcc ccttttcctt gggttatctgg 120  
 ggaatctgcc acagcagaca gcaaaaggta aaaagcatcc ctttaataac tacacccac 180  
 tccagcaatt gaggtttatt caggggtggg tcaaagtagt acaagacaaa aatagcttag 240

tgaaatggnt tagaatccag actgaggtgc cagactgcct gcactctgagg tctcaggtcc 300  
 caccatgtat ggaggccgtg tggaccttgg gggtagaggtt actaggcctc cccgggggtt 360  
 caaatcttct tcacctgtaa aatg 384

<210> 359

<211> 440

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H58873

<220>

<221> unsure

<222> (1) .. (440)

<223> n = a or c or g or t

<400> 359

actataactt agtgtctgta tttaatatg acaacaaaa atatatan tttntttgca 60  
 tctatacaca acagggcagg agtctccatg tnttcttgag cagttagttt gcaggctccc 120  
 acagggcctc ttctcatggt aatagtgtgg ccctagtgcg aaggagacta gaacccggca 180  
 gccagactg gcccttcccc tctctccct gcactccagt gcttcccaac tgggtctcagg 240  
 taaagaaaagn ttantttgag tgggtgggta ggaagagatg ggaaggggca aatcctaata 300  
 ggagcctgac ccctagagtg gggagttcca gggccagcag aacgggtggg ccatagccct 360  
 ncctggggnt agaagctttg tagttcatag ttcgattagt ntgtccntag ggcattnagg 420  
 nccagcccta cagattagct 440

<210> 360

<211> 284

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H60595

<400> 360

aagacagagt ggactgttac aaatgatttt gcaaaatata aaaatagata tacttccact 60  
 gaatgcttta atcatttttc cgggcactct catcttttgg ttcttctca tctgagtaca 120  
 cagtgggctc ctccccctcc ttcagcagtg tgcccagtg atgatacttg aaagtgaact 180  
 gagactccca gtcactcaga gtctcctgct gggcgagtg aggtcagaaa ggtcatcgta 240  
 ctcatccttc agtgcttctc tatccgggga aaatgtgggc aagg 284

<210> 361

<211> 317

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H61295

<400> 361

gaaccctcta agggacctca aaggtgattg tgccaggctc tgcgcctgcc ccacaccctc 60  
 ccttaccctc ctccagacca ttcaggacac agggaaatca gggttacaaa tcttcttgat 120  
 ccacttctct caggatcccc tctcttccca ccttctctca ccacttccct cagtcccaac 180  
 tccttttccc tatttctctc tctctctgct tttaaagcct gcctcttcca ggaagacccc 240  
 cctattgctg ctggggctcc ccatttgctt actttgcatt tgtgcccact ctccaccctc 300

gctccccctga gctgaaa

317

&lt;210&gt; 362

&lt;211&gt; 370

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. H64493

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1) .. (370)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 362

```

gggtgcttta tttccatgct gggcgcccgg gaagtatgta cacgggggtac gtgccaagca 60
tcctcgcgcg accccgagag cccggggagc gggngccttg cggccgtcgc actcatttac 120
ccggagacag ggagaggctc ttctgcgtga agcggttgtg cagagcctca tgcacacagg 180
agcatgagaa gatgttcccc tgctgccacc tgctcctgtc cacggtgagc ttgctgtaga 240
ggaagaagga gccgtcggag tncagcatgg ggaggcntgg gtnttgtagt tnttctccgg 300
ctgcccgtg ctttcccant ccacggggcga tgtcgtctggg ggtagaagcc tttgaacagg 360
gaagtcaggc

```

370

&lt;210&gt; 363

&lt;211&gt; 460

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. H66642

&lt;220&gt;

&lt;221&gt; unsure

&lt;222&gt; (1) .. (460)

&lt;223&gt; n = a or c or g or t

&lt;400&gt; 363

```

ttaaagacag agtttcgctc ttgttgccca ggctgtagtg caatggcgcg atattggctc 60
actgcaaccc ctgcctccca ggttcaagtg attctcctgc ctcaccaagt agctgtgatt 120
acaggtagcc gccaccatgg ccagctaatt ttttctatct ttagtagagc cgggggtttca 180
ccatgttggc caggctggtc tcgaactcct gatctcaggt gatccacctg tcttggcctc 240
ccgtgctggg attataggca tgagccacca cgtccggcca aattttactt cttaaaagt 300
cttttctctc agtgatatca aggtcttctg tctactatta taaccataag cttctttagg 360
cattaaggag ggaaaatgtt taataaaatg taattaaact gggatggaat ggtcagtgt 420
tttaaagtga aatatactta aatgtaatta ccggggnggt

```

460

&lt;210&gt; 364

&lt;211&gt; 291

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. H68097

&lt;220&gt;

<221> unsure

<222> (1)..(291)

<223> n = a or c or g or t

<400> 364

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tgaagtttat ttncctctggc agtatgtttt agtttcttgt ttttnatttt gttgtgtgtg 60
tatgtgttgt agattttatg atttgagggt accatgaggc ttgcaaataa cataacatgt 120
tatttttaaag tgacaacttg acactgattg caaaaacaaa cagggcgaag agaactaata 180
aaaactgtac actttaactt cattcctcct gttttttnaag gtttttatgg gtttctattt 240
atatctcctt gtactatttt gaaaagggn a ttgcagggtta tcatttggtc a 291
```

<210> 365

<211> 317

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H77597

<220>

<221> unsure

<222> (1)..(317)

<223> n = a or c or g or t

<400> 365

```
tcaagtctaa gtgtttaatt attattcaca tatttcacag aaaaaaagga atgtagcaaa 60
tgagtcggag ttgtagaaaa aaaaaatcct ggnttttacg tgtcattctg ttttcatctg 120
acagcagggc tgtcccgaca tcaggcacag cagctgcact tctctgacgc ccctttgcag 180
atgcagccct gggcacactt gggcacagcc caggggnaaa caggagcagc agcctggggg 240
aaaaagggag agagaaggtc acaggcagac ttnaccaggg ganctccctt tcccaacagc 300
aggcctgggc tcaagct 317
```

<210> 366

<211> 340

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H81070

<220>

<221> unsure

<222> (1)..(340)

<223> n = a or c or g or t

<400> 366

```
caggtctaaa gtgtttaatt atcactcaca tatttcacag gaaaaggaat gtagcaaatg 60
ggtcaagggt gtataaaaaa aaaatccagg tttgtacatg tctctctgtt tacatctggg 120
agaaagggtt tcctgggcat cagtcgcagc agctgcactt ctctgacgcc cctttgcaaa 180
cacagccctg gggcacactt gctacagccc acgggnagnc agggagcagg cagctctttc 240
ttgcaggagg gtgcatttgc ctctttgcac ttgcgggaac cagcgcggtg cagggaggagc 300
accagcggcg cagggagcag ttgggggggt cattnngcaag 340
```

<210> 367

<211> 330

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H81379

<220>

<221> unsure

<222> (1)..(330)

<223> n = a or c or g or t

<400> 367

```
ttaannntttt ttaaaaccaa aagaacaact ttaataagct tttacggcac tgcaattaca 60
ggaacatcga cccataacat gcaacaaaaa tgattttgcc ttttggacat atttaacaga 120
taaacttgac attacaagta acagcaacac attcccatc tactgaagaa aacaaatgcg 180
atttaacttt caggttagaa aacgtatctt cttactgcaa tctcaagtng gcatttngaa 240
agtttagttt tcccttttct aacctctaaa agatgatatg atttttaatg caatcatata 300
caactgtttt cacattgggg aatantcacg 330
```

<210> 368

<211> 419

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H81413

<220>

<221> unsure

<222> (1)..(419)

<223> n = a or c or g or t

<400> 368

```
ngagccagaa aaggattttt tttaattcaa gtaactgaaa taggaaacca gaggggggagc 60
cccaggctgg gataaatcat ggctacccct cccaacaga acagggggag gaggtggccc 120
ctacacccat tatggtcgat tcgggcccc ttgctcactc tgctgcagca tcctagaggc 180
agggcccccac cttccctggg actggggtag tcggtcacc agcctgcatt gccccagccc 240
ctnttcccca caaagagtat cttgggggag ggnttcgtgg ggcagaacag gagggcaatg 300
agggatgaac attgctcaaa ctcccttcaa aggggcacct gaccgcacag gggaggntgg 360
gcaggaaggg caagggnrtgg gggatgccgt ntaaggaggg cggangcagg canttttgg 419
```

<210> 369

<211> 386

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H83380

<220>

<221> unsure

<222> (1)..(386)

<223> n = a or c or g or t

<400> 369

```
ttaattgcag aaaaatttat taaattggaa aatcttgcgt ttttcaatgg cgctggcccc 60
gggtcagcgg cgattttctc tgcataaaga tgggctttgc gtttccgtag tgggcaccag 120
```

```

tggtggcctg attgtcagtc ttctcccggc atttttaagg ccagggagcc gaagcgctgc 180
ttgtaggcga ataccctaca gagcgggttg gctttttaaa ttactgttat tattttgggc 240
agagaacagt cggctctgggt gcaccccgct ctcgctgcag aagaggctgc gagtccgagg 300
tggggctctc cgggaaggtg aaattccttc tnggggntna gcgagccccg gccccgcgcg 360
gcagtccagc ggccccggtg ttgttg                                     386

```

<210> 370

<211> 335

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H84761

<220>

<221> unsure

<222> (1)..(335)

<223> n = a or c or g or t

<400> 370

```

cggcacttta ttagtgggga aacnbgccnt ggnctggcag agactgggat caacaggacc 60
ngcaccatc tgcaggnngt attttcngta agancaggng ttccnccctc gtaggtttag 120
aggaaacacc ctcatagatg aaaaccccc cgcagacagca gcactgcaac tgccaagcag 180
ccggggtagg aggggcgccc taggcacagc tgggcccttg agacagcagg gcttcgatgt 240
caggctcgat gtcaatggtc tggaaegcgc ggctgtacct gcgtaggggc acaccgtcag 300
ggaccaccca ggggactttc ttcaaagttc cnggg                                     335

```

<210> 371

<211> 178

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H86112

<220>

<221> unsure

<222> (1)..(178)

<223> n = a or c or g or t

<400> 371

```

gcttaatggg gccaaagggg caacacaaag cattgaaaac atcactggct cacaaaacca 60
gtcaccttgt tacctttotca gttgcatttg tttatttcac aagggttcat tcacacataa 120
aancaagata ctantccaat tcangttcat aacgggtata anggtaanca tttgttg 178

```

<210> 372

<211> 287

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H88338

<400> 372

```

atgcatgttt aaacatttaa tctagaactt gattacaaag taatttaatg aagaaaataa 60
tctgttataa ttcttataga tgtttattag ttttagatt taaaaaaaaa acaggggctta 120

```

taatttaaagc aattgactaa tgatctcaca gcctcaaggt tgtatgcaaa cctagattag 180  
aaatacttttg gtctctaaaa ataacaaaat ggaccataac attttttttc ttacaagttt 240  
gaagtgggtc aattatgggg gaaacacata cattcctaag gggaaat 287

<210> 373

<211> 337

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H88798

<220>

<221> unsure

<222> (1)..(337)

<223> n = a or c or g or t

<400> 373

nactttaata agtataaagt atataaacia ttaggtaagc ttgtggagaa gctgaccaag 60  
atacataaat taggaaatac aagtgtccat cttaaatttc tatatttcat ttttttcata 120  
atattttatta aagggtgtta atatacagtt tctcatctgt cattttggaa gtcctttatt 180  
gtaaagacaa ttctattgtc tgatgacaaa cagcagccac catgggttatt caggacctcc 240  
acgttgata aattccattt cttcttgaga cacaagtttc cttctggtat ttctgaggta 300  
atggntttta ttatttctgg cagtgtctgg tggaccc 337

<210> 374

<211> 321

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H91703

<220>

<221> unsure

<222> (1)..(321)

<223> n = a or c or g or t

<400> 374

ccataagaca agtgacatat ccaaccaacc atccatcccc acctgtgccc tattctttcc 60  
ttgtgtttct ttagagcctt ttcagctatt tcctgtgaag caaactgcac gaaggcctcc 120  
cccgtactcc tcccctggaa gtccaccggc aatgttatcc catttggcac gatttccaac 180  
ccttcaacc aaggacaaat aaccccagta gggggncaat attaacatca caagcccagn 240  
aaatgattct tcttataggc tttaaataaa ccaggacttt ttaacttttag ggtgaatggg 300  
tatgctttca acaagtactc t 321

<210> 375

<211> 395

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H94471

<220>

<221> unsure

<222> (1) .. (395)

<223> n = a or c or g or t

<400> 375

```

tttgttacttt ttacatgatc tttattatattt aagaaaaaacc tctttttaacc atttatatataa 60
cagaaaaaaa atagggaggc tggtagatca tcacatatat agtagctaaa atatgaaagg 120
ccagggaattt tattattaat gaagtcataa aacagactta accaaaagtg tgtgctagga 180
aacaagcagt ttcacttcag agacttcatt gcaggaaccc agtttcctta tgtggaaaaa 240
agtgattata aataacagtt atctgaaagg tggttgagag gattaaatga gatcacctat 300
gcaaacaaat acatgtaggt atgaaagacc atccgtcctg ggggtngtggt aaagtttaag 360
tttcccncc agaacccttc cctttaagggt cctta
395

```

<210> 376

<211> 373

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H94475

<220>

<221> unsure

<222> (1) .. (373)

<223> n = a or c or g or t

<400> 376

```

tttttgccca ttcattcttt attcagggtgg cataaaaaatc actacaaaaa ccttacaaaa 60
gagccttaag gagctcatgg gatccttccc tgccctcggtt cctgagctcc cgggcagagg 120
agggagacag gagaggaagg aagggaaatg ctggcagtggt tgggatctcg aggagccgtg 180
ggaagtctgg cgtgacaagg cacaggggggt aggatggagg ctgatggact ctcggcaggt 240
taggccacag ccaaggctgt gccangacac gagttccacg cggggctgag gacaacgctt 300
cgctctccga gccaccacca gggcccgtct ctccccaccc taagcctagg tgtcccggga 360
caagtccaaa ggc
373

```

<210> 377

<211> 417

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H95960

<220>

<221> unsure

<222> (1) .. (417)

<223> n = a or c or g or t

<400> 377

```

ttttattggtt ttagtaattct taacataact taaaataaga gaggggaaat gacatctgga 60
gatctaggta tgtggcccat tgcaattgag cacatttctt gggctctgtt ctctatctct 120
aagggcagtc tcaaaacccc agctcaaaat acgacactaa catgatgaac atgcatgagc 180
tttgaaaagt gctctgtagt cttatgatga tctagaagag cactgtccaa tagaactttc 240
tgtgatgatg aaaagattct acttctgacc tattcaatag ggtaaccact aatcatgcat 300
ggctctcaag cacttgaaat gttgctagtg tgattgggga gctgcgtttt gaatgttaac 360
naatttanat tttaaactnt taaaaagttt acatgtgggt tagtgggncg ccgtacg 417

```

<210> 378  
 <211> 439  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. H97538

<400> 378  
 atttttgtag ttttgggcaa aacattcact gttctgtttc agcatatttc cttggaacat 60  
 cttcatctct ttccattttg cggacactcc ccttcttcta ttctccttta ctcaaaacat 120  
 atggtttaga cccacatcat ggctttcttg tgggaagcct ggatgggact aggaaaacac 180  
 atgtttccaa catggtgcat atctgtttgt gcagatatca gacaagattt aatcttgtct 240  
 aacttatgcy tattgttttg atgtttgcct gtggttatto tgggcacagc aatggtggac 300  
 attattgaaa atgaacttta ttggcagatg aaagataata gaacatgaag atttatgaac 360  
 taccataagc tctgcatctc tgggtcttca tttccaaagc agcacttgga aaaccaagcc 420  
 cagtttcagg caaagagtt 439

<210> 379  
 <211> 440  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. H98835

<220>  
 <221> unsure  
 <222> (1)..(440)  
 <223> n = a or c or g or t

<400> 379  
 caagatcctg cctcccaagc ctataagctt taccaggaga gaggcaggcc ccaccccaag 60  
 atccactatc cactctttga agaaagatta gagccatgtt ctcagacttt gggctgcata 120  
 ctaatccctg cgaagtgcac aatgtgtgat gactccaccc tccacccgat ccagagggtc 180  
 tggggtgaga cccaaggctg agaggctcgt atggcttcct ggccccatct ccggcagcag 240  
 ctctatggct gggctctcct gcaggctggg tgcacccag gccctcagat ggttctaacc 300  
 agaatcgatg ggcagcagtg acttcgactg tatcatcaat cttggctgcc acaaggttgg 360  
 gttgtccagg cctcagctt ganccttgga ggtggggccc ccacacagag ctttgtctgc 420  
 cccagccca cctcattta 440

<210> 380  
 <211> 495  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> Genbank Accession No. H99035

<220>  
 <221> unsure  
 <222> (1)..(495)  
 <223> n = a or c or g or t

<400> 380  
 tgagctttgg acaaatttat tgaaacatac aggcggctgt tagcagagaa atcattccat 60

```

gattgatgtg ttacatttgg ccactacctt gaatgtataa tttaaaaatt atattttttca 120
caactaagcc tttgncaaaa aagtcattta gcacatcttt aaagatcaat aagaaatgga 180
ttttggacat taaaaagatc aagtcactga attaaacagt agcaaccccc attaatctag 240
aatcccatag tgctgaagggt agagggtgtct gtgcaaagct agtcatttgt taacagcaat 300
cagaaganga tggggggcagg cacacctgtc agagggtggca gcagactggc aggacaggac 360
ggctgggctg gtctgggtcag gtgagcatgt ccagagaca gcagcaacag agagccgtcc 420
agcaggctgt gaggcagggt gatgggtcta gctcatctcc tccttgggtc ttctaccaca 480
tacactgtgg gnttt 495

```

<210> 381

<211> 424

<212> DNA

<213> Homo sapiens

<220>

<223> Genbank Accession No. H99648

<220>

<221> unsure

<222> (1)..(424)

<223> n = a or c or g or t

<400> 381

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ggggtatata atttttatatt aagtttatat ttcttgcagg atagcaacat acatcttttc 60
ctaccagag gcaaaatata ttttccaaaa acgtggacac tgcccactgc attaatgta 120
aagtgtctcc tatatatata gacagtaaaa gtaagcaaag aaacttacia cacattccaa 180
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&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;223&gt; Genbank Accession No. J03464

&lt;400&gt; 387

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&lt;223&gt; Genbank Accession No. J03507

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&lt;213&gt; Homo sapiens

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&lt;223&gt; Genbank Accession No. J04130

&lt;400&gt; 391

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